The Official Amstrad Magazine

February 1987 £1.00

AMSTRAD COMPUTER USER

Gauntlet games compared

PCW Protext, Arnor's finest

PC programming



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MASTERFILE III is now firmly established as THE filing system for the CPC6128. It has received rapturous reviews and we could paper the walls of our new offices with our customers' letters of appreciation.

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H Summary of Business Assets

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Microcomputer, 128K RAM + disc	Amstrad	CPC 6128	£299.00
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Executive jet aircraft	Lear	Cloud-Cuckoo	£5,200,000.00
Typewriter, electric	Olivetti	Leterra 36	£130.00
Dictation machine	Philips	510	£190.00
Coffee maker	Philips	HD5349	£30.00
Parcel scale	Salter	250P	£119.00
Microcomputer, 48K	Silicarn	Trumspec	£129.95
Letter scale	Waymaster	375KL	£10.00
Totals:			£5,202,294.26

Top record = 0001 [H] for menu

File: FILE2 Records:0016 Selected:0016 Parents:0000 RAM used:02K from 64K

ALL THIS POWER ...

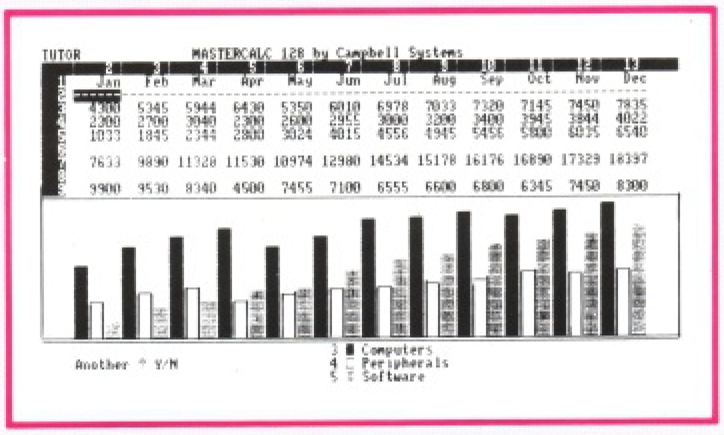
This is no toy thrown together in BASIC and half-tested, but real machine-coded computing power professionally constructed. We have had IBM and Apricot users beg us for a MASTERFILE for their machines — when they had seen the earlier CPC MASTERFILE. All this power is yours for ... **£39.95**.

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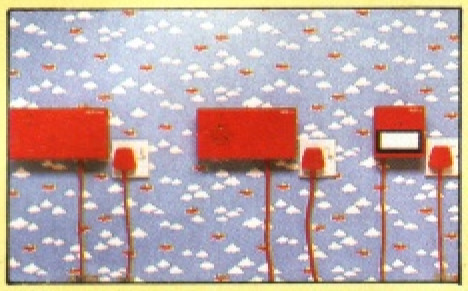
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AMSTRAD COMPUTER USER

The official magazine for all users of Amstrad computers

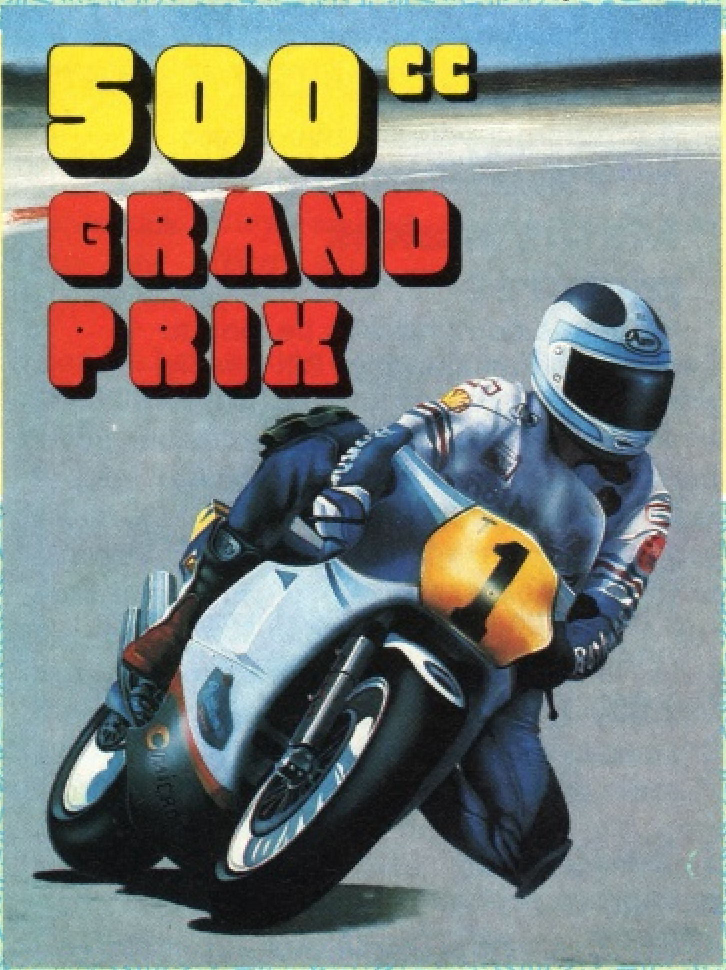
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NEW from Loriciels

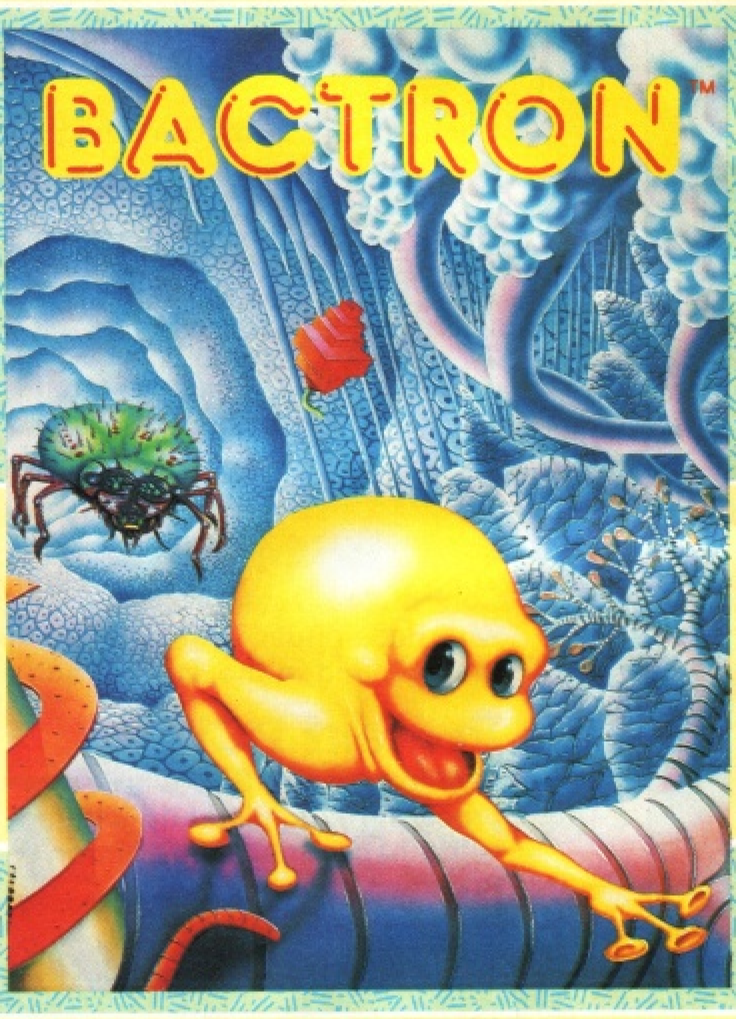


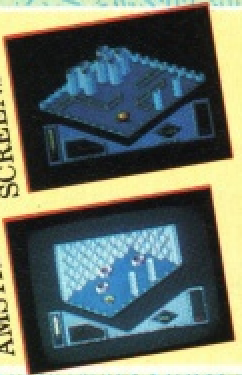
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AMSTRAD

NEWS

New name for Amstrad as it takes to the skies

The company we know as Amstrad has changed its name. The old title of Amstrad Consumer Electronics Plc has been shortened to just Amstrad Plc., retaining the important bit which is derived from Alan Michael Sugar TRADing.

The renamed company has something to celebrate with the award of the world's largest television contract to British Satellite Broadcasting (BSB), a consortium which is backed by Virgin, Pearson (who own the Financial Times), Granada TV, Anglia TV and Amstrad Plc.

The contract gives the consortium the right to run three direct broadcast by satellite channels. Two of these – NOW, a 24 hour news channel run with the support of ITN, and a Disney-style entertainment channel – will be free, paid for by advertising. The third channel will show recent cinema films and will be paid for by subscription. This is expected to cost about £2.50 a week.

BSB won the contract in the face of stiff competition from four other consortia. The channels will be monitored by the IBA, who look after the public interest on ITV.

The DBS system is expensive. Each of the five members of the consortium will have to raise £100 million for initial funding, and they are looking for further investors.

A start up capital of £500 million may sound a lot but there is a lot to be done before the three year project starts transmission.

The scheme should create up to 25,000 jobs in the first five years. BSB have the contract for 15 years but they need to launch one, maybe two, satellites first, each costing around £100 million.

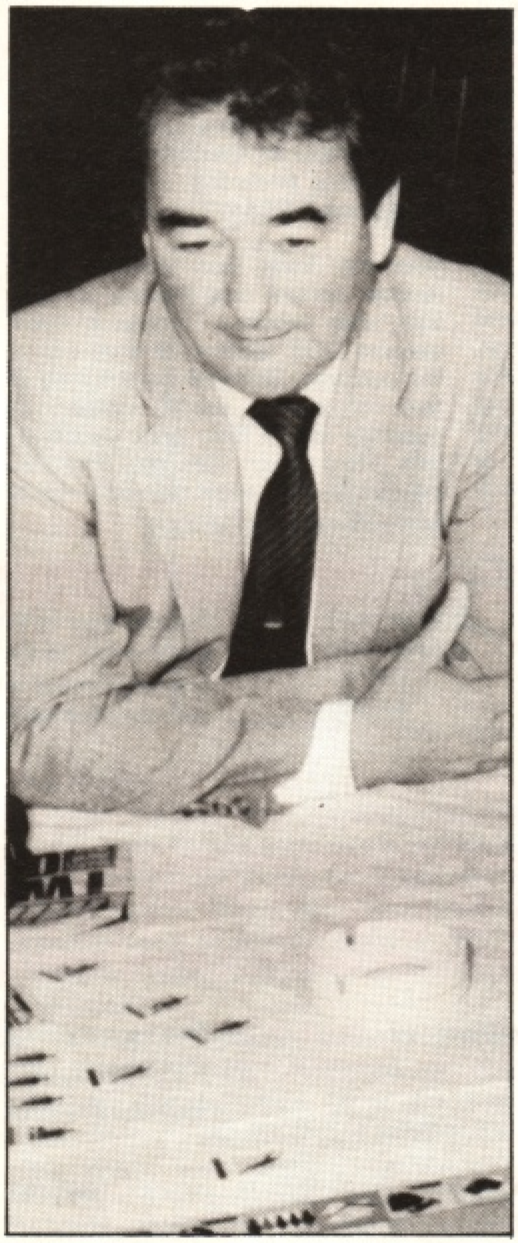
The Space Shuttle accident and failures in the French-led Ariane rocket project have left a long queue of would-be satellite owners waiting. BSB expects to spend £100 million on making programmes in the first year.

The customers' costs are much more down to earth. A small satellite dish of around 45cm in diameter and a special decoder is expected to cost around £200. One day Amstrad may build the decoder into televisions as standard.

This is very much cheaper than the current 200cm type of dish and receiver which costs around £1,500 to install. Viewers who get cable TV will not need any extra equipment.

With the low cost of dishes and decoders satellite TV is expected to grow more rapidly than did either colour TV or the use of video recorders.

Lord Thomson of Fleet said after the opening of Scottish Independent Television that it was "just like having a licence to print your own money". The new scheme should prove to be Amstrad's biggest moneyspinner yet.



Brian Clough . . . trying his hand at soccer "monopoly"

CDS Kicks off

Board games and computers don't usually mix – there have been some dreadful games which prove that. However CDS has shown it can be done with Brian Clough's Football Fortunes.

The game is similar to Monopoly in that you have to control a team and make as much money as possible.

As you win matches you move up the league, the more successful you are the bigger the gate and the more money you make. You can then re-invest this in better players, but be sure to balance your team.

The computer takes on the role of dice-thrower and "chance" cards as well as working out the results of matches and your rating as a manager.

You don't need to understand much about football, or even like the game. Also it may help if you've never heard of any of the players since you don't mix money and emotion. Not if you want to win.

The game needs at least two players and is available for the CPC, PCW and PC computers at prices between £14.95 and £24.95 depending on the format. You can contact CDS on 0302 21134.

Arnor lingo launch

Once upon a time there was a computer language, and for want of a better name it was called A. Then someone improved on it and so it was dubbed B.

Then two people improved on that. One called the new language – you guessed it – C and the other broke with tradition and called the new language BCPL.

They are all efficient, structured and powerful and they are all very difficult to master. But, so we are told, the effort is worthwhile, the end result being programs which run fast but take less time to develop than machine code.

CPC owners will know that the best place to stick a language is in a rom, so that is what Arnor has done with the new BCPL program.

So as not to leave out PCW owners there is a disc version for them. Full details from Arnor on 01-684 8009.

Please bear in mind that the views expressed herein are not necessarily those of Amstrad. Be assured that all your views are given thorough consideration. This letters section is the Amstrad Computer User's own forum.



Lance's Letters

Hello, my name is Lance Davis, I'm your new letters editor. Send me a postcard (drop me a line?), letter, notelet, epistle or dispatch. Write it in crayon, use a Joyce or send it Email (Telecom Gold 72:MAG012) but please write. Otherwise I may have to go back to my old job of thinking up excuses for software houses who advertise games before they start the programming.

Rambo revenge

In reply to Reuben Thurnhill's letter in September's *ACU* here is the solution to his troubles.

After leaving the helicopter go to the bottom left to the building which you can't blow up. Change your weapon to knifes and move along the bottom of the building. The prisoners will be freed. The rest is up to you.

John Nougher,
Kent.

LD: *Thanks for the tip, now I we can kill the commies and sleep safe in our beds true to the American dream. Ron would be proud.*

Arnold advice

I have recently bought a CPC6128, which I will be using mainly for domestic word processing and similar work. I expect also to do some programming and the question arises of what language to use.

I have a slight acquaintance with BBC Basic but otherwise am a complete novice. Basic's chief advantage seems to be that everyone is familiar with it so that there is a wealth of knowledge available.

But it has its limitations and Amstrad's version lacks some of the more advanced features such as procedures, parameter-passing, and local variables.

As an alternative I have Logo, a modern language designed for micros that lends itself to well-designed programs. Should I forget Basic and use only Logo? I would be interested in your and your readers' views.

I would also be grateful if you would let me have details of any issues containing reviews of the word processors by Arnor, Brunning and Tasman.

M. Catton,
Gosport.

LD: *BBC Basic is more like Pascal or Comal and is the result of too many educationalists having too much say in the design.*

*True, it's fast, but in a computer that small they should have made it a shade more memory efficient. Amstrad tried to retain a true Basic and then add on goodies such as event handling. Still if you like typing VDU z,y,z or *FX 99,2 then fine.*

I thought everyone knew that Logo was makeweight, something that Amstrad got cheap from DR and bundled with the 6128 and PCW so that they could write about it in the sales blub and to help the poor man in Dixons convince you that the machine is educational.

No one actually USES Logo. Even DR act surprised when they find someone has written a long enough program to find a bug.

The editor tells me that we reviewed Tasword so long ago that he's forgotten when.

Protext is the best word processor ever.

Screen saving

Please could you tell me how to store a screen into memory, I am only 10 years old and I am very interested in Amstrad computers.

My dad bought a CPC464 when they were new out but when we saw the CPC6128 we sold our 464 and bought a CPC6128.

Gareth Howlett,
Alicante,
Spain.

LD: *If you have scrolled the screen then saving it is gonna be tricky. Assuming you haven't (cop-out – Ed) type SAVE-"screen",b,&C000,16384 and the screen will wend its merry way onto tape or disc.*

Pugwash programming

I have an Amstrad CPC464 but am a newcomer to Amstrad Basic. I would like to know how I can reload and change a protected Basic program and also I was wondering if I could get the game Ghosts and Goblins on the Amstrad.

M. Ruge,
Australia.

LD: *The protection is put on a program to stop you reloading and changing a program and then giving it to all your mates.*

Yes, there is a way. No, I'm not going to tell you how. Ghosts and Goblins is brill and you can get it from Elite (0922) 55852. Still that's an expensive call from Oz – try to call during the day.

Not so trivial

I am writing with a serious complaint about your review of Trivial Pursuit. You made no mention of the programmers, a dedicated and hardworking group of eight people who make up Oxford Digital Enterprises. Instead, you gave all the credit to Domark – "author Domark" . . . "the frills Domark added are really useful!", which is as intelligent as praising the publisher of a good book rather than the author.

The people at ODE edited the board game, then revised researched, designed, invented, checked, double-checked and programmed the computer version. Therefore it was they who made it such a success and they who deserve full credit.

Surely it is in your interests as a good computer magazine to know enough to give credit where credit is due.

R. Newnham,
London.

LD: *Too true, yes the praise should go to ODE. All too often the praise goes to the publisher and not the programmers.*

Often this is the fault of the software house, but with Trivial Pursuit this is not the case. Domark did a good job of telling us about ODE and it is purely our fault – sorry.

Joyce loves Arnold?

I have owned a CPC464 with two disc drives for the past two years and have been extremely pleased with it.

Just recently I purchased a PCW 8512. I have tried to use my discs from the 464 in the disc drive A on the 8512 and although the files are listed on typing 'dir' when I type in the file title after A> the title comes up with a ? after it. Is there any way that I can use my 464 files?

S. Stringer,
Kent.

LD: *You can read CPC discs on a PCW but you cannot use PCW discs on a 464, well you can but you get odd results.*

To find out why it isn't working I'd need more details of the software you are using.

Christmas clangers

I am writing in reference to part of your Christmas shopping guide in the December 1986 issue, in which you refer to two back-up devices for the CPC range.

In one paragraph of less than 40 words you make two serious inaccuracies, which I am writing to correct.

Firstly Multiface 2 does not cost £34 as you say, it costs £46.95. I imagine that Romnatic Robot will get a lot of angry phone calls as a result of that error!

Secondly, you say that Imager will copy more programs that Multiface2. This was not my experience. I found no program which Multiface2 could not copy and three which the Imager could not copy.

Further with Imager it is nearly always necessary to fiddle around with windows and colours.

Lastly, Imager will require a cable at £5 to work with the 6128, which brings it outside the sub £50 price range for the 6128, while Multiface 2 costs less and not only copies with less hassle but has a reset switch and toolkit as well, as you hinted when you said that it had more features.

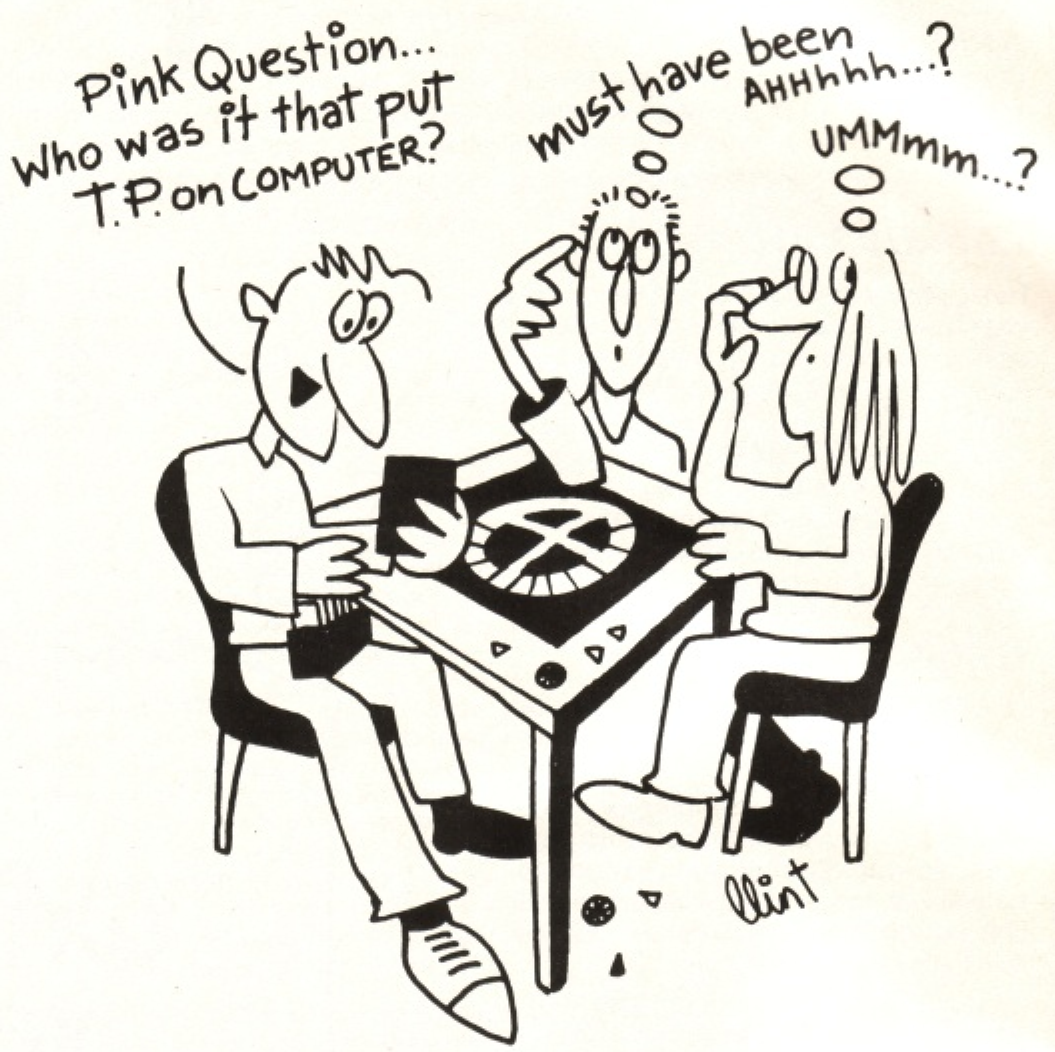
Ian Hoare,
London NW10.

LD: *Slap on the cuffs, it's a fair cop. We made a mistake. Yup the price of the multiface 2 is £46.95.*

The way in which it works means that software can check to see if a multiface is attached.

The Multiface has its own PAL which allows it to correct the colours when you have pirat . . er, backed up a program for your own personal use, but software can check to see if the PAL is there, hence the claim that it is not going to copy as many programs.

While I have the sackcloth and ashes on I may as well point out another mistake, the number for Metroheath, the Omnireader people, should have be 01-247 7184 (Sorry Austin).



Dear $%ggLop

Took me a longish time time to geyt this together, but I got it cracked now. Bin readin' yer mag an stuff.

Got some stuff ter say about it. Like what you got against us what got Hayes- compatible, auto dial, auto answering, self scanning, WS001 things?

Don't you know that the finest minds around got them things? Well, so they say, anyway. Oh, yeah, the towel thing's been done. If you had the new 40.00 word Humour-Checker (user expendable) you'd know that. Hang about 'cos I gotto change paragraphs.

Movin' on from that stuff, I dropped an acorn on a squirrel and got the ninemore carrots but here in foreignland the squirrels got better taste and only eat frogs legs. So how do I get some o them?

Wrote off for one o them light pen the other day, Humphrey Bogey looks like Felix the cat so I sent it back. Needs tunin up or somesuch. Apart from that stuff the mag does the job but then I gooto say that to get printed.

This was done on one o them 8516 wotsits. Well, you got to show class ain't yer. Sorry about the lapses into Inglish but i ain't got the Locoscript thing totally sorted yet. Bye Bye from us wogs.

Martin Winyard.

LD: *Ha, ha, a funny letter. Laugh? I nearly snored.*


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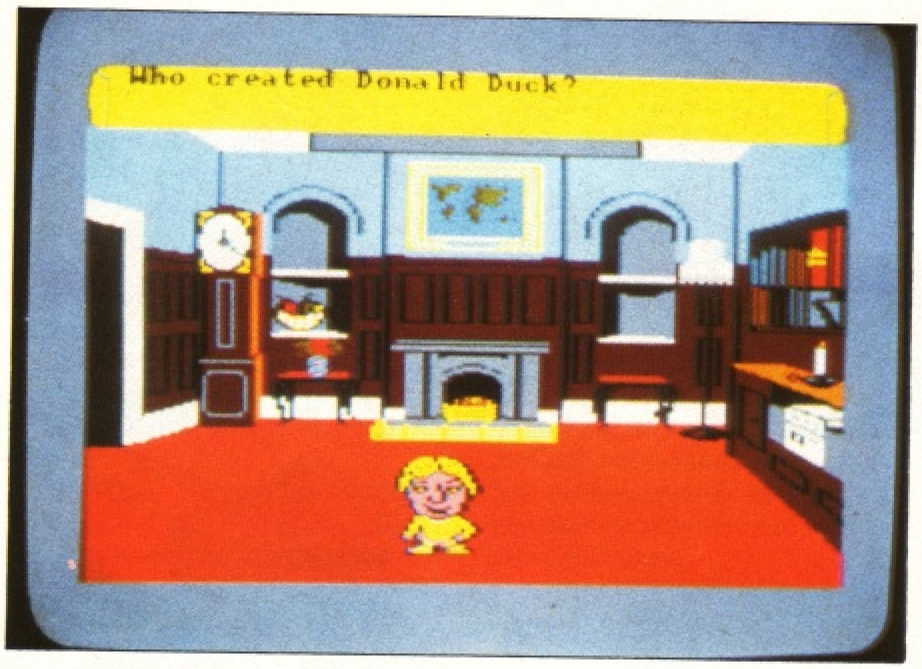


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Postal spread

I am a subpostmaster and therefore have to every week produce a set of accounts. To this end I purchased an Amstrad 6128 in June of this year, which, with a word processing package would allow me to expand my business as well taking in local secretarial work.

I have spent endless happy hours playing with my "toy" (my wife says she is a computer widow).

I bought a low cost office suite which works marvellously but I need to sharpen my teeth on a spreadsheet with a considerably larger cell capacity, say 3000+, and with a mathematical capability on one sheet to fulfill all the items of my weekly balance.

This means that I need to cross total, transfer totals from one table to another and similiar operations.

J. Johns,
Dorset.

LD: *You could do a lot worse than look at SuperCalc Amsoft. Your local shop should have a copy.*



Light under a bushel

I'm a bit of a graphics freak and buy most graphics programs on the market so a couple of weeks ago I took a chance and sent off for an unreviewed and previously unheard of program called Parrotry which was advertised in the back pages of your magazine.

Lo and behold it turned out to be excellent; far more fun to use and better value for money than most other graphics programs.

The point I want to make is that there is lots of software available from smaller companies which is good, bad and indifferent, but we readers often don't know it's quality, so please could we have some mini-reviews or some sort of marks chart so we don't have to gamble with our hard earned money, as I am sure I won't be so lucky next time.

H. Jones,
London.

LD: *With software arriving every day it's a bit difficult to keep track of all the new releases, so unless software houses send us a letter, or better still a review copy, they can't expect us to write about their wonderful programs.*



Instant Basic

Is there a way of making a turnkey disc for a Basic program? I have written a data filing system for my geneological records which I use a lot and would like to make the installation process automatic so that I can pass it on to other members of the family.

On a disc with CP/M, SUBMIT.COM and a PROFILE. SUB with BASIC.COM will of course lead straight into Basic, but is there any way to lead from there into my own program without further keystrokes?

I have tried putting it into the PROFILE.SUB ahead of BASIC.COM but have found that this only crashes the system and not even Reset will unscrabble it; and of course if I put it in after BASIC.COM the system has CP/M and hence PROFILE.SUB before it has had a chance to implement it.

G.K Armstrong,
London.

LD: *You are nearly there, you need to add your filename into the submit file and put J13CPM3.EMS on the disc and all should be tickerty-boo.*

Shop talk

I own an Amstrad PCW8512 and read several computer magazines regularly, including yours. About a month ago while on my way to work I stopped off to buy your magazine and a few moments after leaving the shop a gentleman walking alongside me, saw what I was reading and politely asked if I was an Amstrad user, to which I replied yes.

He then asked if I knew of any clubs or societies in or around Leicester to which I had to reply, with some regret, that I did not.

I have considered this conversation many times over the past month, and would now like to know if there are any clubs or societies for Amstrad users in this area? If not, would anyone else be interested in joining me in starting one?

Anyone really interested in this idea can contact me at 77 Melcrose Rd, Thringstone, Leicestershire.

D Meadows.

LD: *I'll remember that one next time I see the leggy blonde who buys ACU in my local shop. Good luck with the club.*

Music mayhem

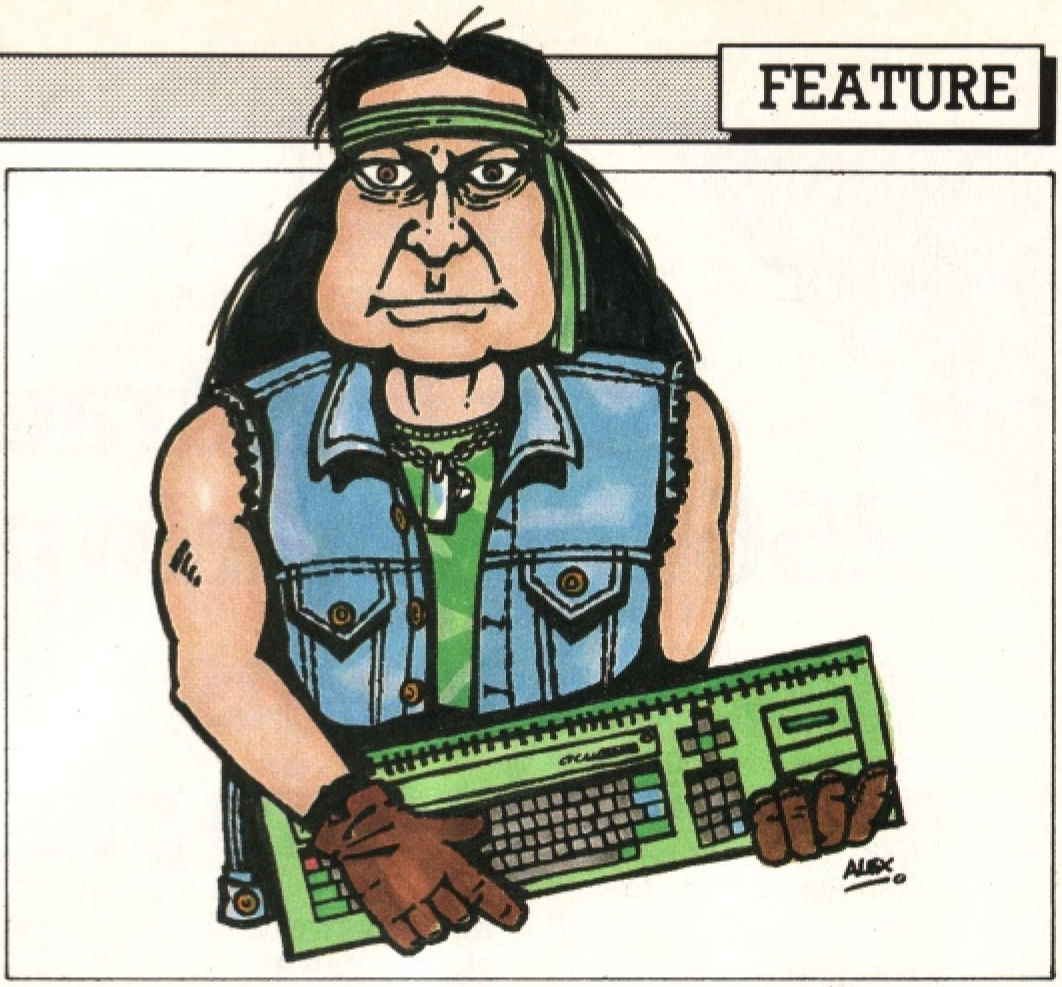
I would like to buy a Midi recording system for a CPC6128 but so far have seen no advertisements in your magazine. Could you tell me if any exist yet and if so who to contact?

Denis Hillman,
Australia.

LD: *There is a Midi interface from the noisiest man at any show Mike Beecher. We reviewed it last August and you can buy it from EMR, 14 Mount Close, Wickford, Essex (0702 335747).* ACU



HAIRY HACKERS HAUNT



Vax, shaken but not stirred by a severe New Year's eve hangover, offers another selection of odds and ends

Another person noticed the strange message (mentioned last month) hidden in Defend or Die; Archangel Richard Hooper from Applecross, down under. He points out what a pain in the arm Elite is on a monochrome screen, all the ships being in ink 1, and thus well nigh invisible. Any fixes ZZKJ?

Oh yea Archangel, if you see a Pom/Austrian nurse called Margaret, newly arrived in the Land of Oz, tell her her hairy son says "Hi". That was a Hello Mum broadcast on behalf of the Hairy Party.

Printing backwards

Somebody once said: "Pity, but there's no backspace in LocoScript." I did? Oh. Anyway, there is now and here's how (a bit convoluted this, but keep reading):

Use the upper case % symbol on [ALT][SHIFT]P as the backspace in your documents. To print them out, first convert them to an Ascii file (07 in thedisc management screen) – this works in a similar manner to a copy. Try to put the converted file into the first group of the disc.

Next, dive off into CP/M and type PIP. PIP then announces itself with a wee message and a big *. At this point, put in the disc with the file on and type: LST:=filename. Buzz, buzz, printout with backspaces.

Don't try to print out right-justified text in this manner or it'll look like hungry rats have been nibbling at the edge of the letter.

A letter here from Arthur Dent (Come on! you aren't serious?) of Swillingdon (not Magrathea) who has had four consecutive thrust failures with his tape on the 6128.

I sincerely hope that this is only his tape deck not getting on too well with his 'straddy. Anybody else had similar problems?

Happy hacking

Next on the agenda today is Justin's happy hacking spot, with subtitles for the hard of hearing. Note that there is only one checksum in it this month. This is to put some challenge into typing in pokes.

If anyone out there should perchance send in the odd poke or three, brownie points are scored for putting checksums on long ones.

Any road up, the following pokette will give infinite lives, grenades and ammo for both combatants in Ikari Warriors. The Iraq/Iran dream:

```
1 REM IKARI WARRIORS POKETTE
5 REM WOT NO HEX ?
6 REM WOT NO CHECKSUM !
10 MODE 0:BORDER 2
20 MEMORY 4799
30 FOR i=0 TO 15:READ x:INK i,x:NEXT
40 LOAD "!screen.bin"
50 LOAD "!warriors"
60 FOR n=1 TO 3
70 READ a
80 POKE a,0:POKE a+1,0:POKE a+2,0
90 NEXT n
100 CALL 65488
110 DATA 13,6,3,15,16,0,1,2,14,26,24,9,12,
    21,22,19
120 DATA 26900,27546,27426
```

A process of trial and error (mostly error) has shown that this very routine will also work on at least one disc version of the same. How fortunate for you all.

Pokette Number Two is for infinite jumps and time on Trailblazer. "Rewind the tape and run the proggyette below". Something gives me the feeling that I've typed that in before:

```
10 MODE 1:MEMORY &1FFF
20 LOAD ""
30 FOR n=&300 TO &316
40 READ a$:POKE n,VAL("&"+a$)
50 NEXT n
60 CALL &300
70 DATA 21,09,03,22,83,20,C3,00
80 DATA 20,AF,32,50,23,32,C3,24
90 DATA 32,D4,24,C3,00,04,4A
```

Short and sweet. Hexactly.

Cries of "ere, the clock's still goin' down!" can be safely ignored, 'cos when the time runs out, the game carries on.

Now infinite lives for Terra "amazingly smooth scroll" Cognita. Circumvent (look it up in the dictionary) the loader by typing LOAD "", then run this routine:

```
10 REM TRADITIONAL SMART COMMENT
20 MODE 2:OPENOUT "d":MEMORY 999
30 INK 1,0:INK 0,26:BORDER 0
40 LOAD "!",49152
50 LOAD "!",1000
60 LOAD "!",20000
70 POKE 6574,0
80 CALL 1004
```

Not that difficult was it ?

Now the big one: Infinite lives, shuriken (that confused LocoSpell!) and keys for Gremlin's Avenger. Rewind [PASTE][R]. (That is the key on my Joyce with "rewind the tape to the start and run the below routine" on it):

*And presentation quality graphics, so ask about DR GRAPH and DR DRAW packages **£49.95 each**

AMSTRAD PROFESSIONALS FROM DIGITAL RESEARCH

Your Amstrad has 256k or 128k to play with.

It seems a pity just to play.

The Amstrad 8256 and 6128 are extraordinary machines with random access memory that lifts them far above the home computer norm.

Now Digital Research, creators of the CP/M operating systems bundled with these business calibre Amstrads, offer serious users professional program development power and applications portability via two high level Digital Research languages: PASCAL/MT+ and CBASIC COMPILER.

Both languages come as complete packages of standard Amstrad 3" disks with full documentation.

The most complete PASCAL £49.95.

PASCAL/MT+ is full ISO standard PASCAL, extended to provide a comprehensive professional programming environment for industrial, business and educational applications.

It's faster, more versatile, more portable and easier to use in sophisticated applications demanding segmented development.

The package includes a compiler to generate relocatable object files; a linker to generate executable files from compiler outputs; a run-time support library covering transcendental functions, machine interrupts and other tasks; a disassembler and a symbolic debugger.

As well as standard ISO numerics, PASCAL/MT+ supports BCD and floating point real numbers for arithmetic precision. Special features reduce program size and enhance I/O capabilities. PASCAL/MT+ is the fully implemented PASCAL you can start with, stay with and never outgrow.

Ten times faster with CBASIC £49.95.

CBASIC Compiler is a native code compiler that allows separate modules to be written, tested and combined to create a complete program. And it combines machine code speed with BASIC ease to produce programs that execute eight to ten times faster than the same interpreted programs.

A fully integrated set of device independent graphics statements and functions permits direct output to any graphics peripheral without recompiling.

Extended precision 14-digit decimal arithmetic ensures that fractional parts of pound amounts are exact and ledgers balance to the penny.

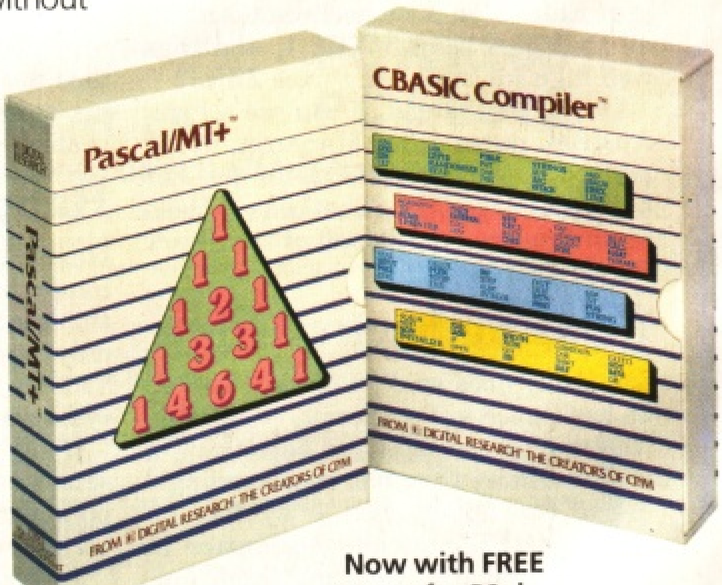
CBASIC Compiler also supports integer arithmetic, so you can use integer variables to increase execution speed.

Multiple line function capability with multiple parameters provides features found in block-structured languages. Local variables can be declared in an MLF. MLF functions may be declared as external, belonging to an entirely different program module.

Development Potential.

PASCAL/MT+ and CBASIC Compiler run on the Amstrad CPC 6128, PCW 8256, CPC 664 and CPC 464 with DD-1 disk drive. Use of graphics with CBASIC Compiler is only available on CPC 6128 and PCW 8256.

The Amstrad Professionals from Digital Research will allow you to explore and exploit your Amstrad computer's program development potential to the full.



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*FREE telephone support for 30 days following receipt of registration card. Thereafter a full year's on-line telephone support is available for just £15.00 + VAT. Full details will come with your software.

*Prices include Packaging, Postage and VAT.

DIGITAL RESEARCH
The creators of CP/M™

```
10 MODE 1:MEMORY &1FFF
20 LOAD ""
30 tot=0
40 FOR n=&1160 TO &119F
50 READ a$:a=VAL("&"+a$)
60 tot=tot+a:POKE n,a
70 NEXT n
80 IF tot<>5968 THEN PRINT "Oh dear, I've found
   an errok in the data.":END
90 CALL &1192
100 DATA 21,58,01,22,08,20,21,6F
110 DATA 01,22,83,20,C3,00,20,AF
120 DATA 6F,65,32,FE,A3,32,14,A4
130 DATA 32,63,01,32,18,A4,32,8E
140 DATA A2,22,8F,A2,32,E5,A2,22
150 DATA E6,A2,C6,18,32,18,A4,C3
160 DATA D8,65,21,60,11,11,60,01
170 DATA 01,32,00,ED,B0,C3,60,01
```

Dumping the PC

All gone! End of Justin's pokey time, and on to more little snippets for the PC1512, if you've got one, just to prove the PC is catered for in this magazine.

The following is a tip for the Airo: DOS +. It has no screen dump. It had no screen dump, until now. You'll still have to use the MSDOS GRAPHICS command for running off pretty pictures, but the following pokey-bijouette will result in a text screen dump of 40 or 80 columns, depending on what screen you've got. Smart eh?

Type the HEX listing into RPED, call it DOSPRT.HEX and put it on a disc with DEBUG and a bit of room. Remember: The CAPITALS are important! To check for errors in the listing, use the following under Dos+:

```
:10010000E9BF002E803EBF0100753550E4608AE0F3
:10011000257F803C3775182E8826BD012E0A26BE05
:1001200001751CE81F002EC606BF010090EB103CB5
:100130002A750C2E8826BE012E0A26BD0174E458AD
:10014000EA000000005351522EC606BF01FF9004D2
:100150000FCD108AC432E42EA3C001B40332FFCD08
:100160001052B40232FF33D2CD10B91900512E8B88
:100170000EC00151B40832FFCD1033D232E4CD1796
:10018000B40332FFCD10FEC2B40232FFCD1059E2EB
:10019000E2B80D0033D2CD17B80A0033D2CD17B470
:1001A0000332FFCD1032D2FEC6B40232FFCD105959
:1001B000E2BB5AB40232FFCD105A595BC3808000B3
:1001C00000000E1FB409BA0802CD21B80935CD21AF
:1001D0008BC3B841012E890743432E8C07B80925E9
:1001E0000E1FBA0301CD210633C08EC026C70614E8
:1001F000002C0F26C706160000FC07B80031BAC253
:1002000001B104D3EA42CD210D0A0A2D2D20444F1D
:100210005320506C7573205072742053632050 61CA
:10022000746368202056302E31202D2D0D0A0A24AB
:10027000000000000000000000000000000000007E
:0000000000
```

PIP NUL=DOSPRT.HEX[HE

The line with the error in it is the one above the error message.

The following steps using DEBUG have to be done in MSDOS, 'cos DEBUG doesn't like Dos+ either:

Insert disc with DEBUG on into drive A on a freshly booted system. Type DEBUG (the logical way to run it) and carry on as below:

–NDOSPRT.HEX
–L
–NDOSPRT.COM
–W
–Q

DEBUG has this strange habit of doubling the size of reconstituted HEX files, but that needn't worry you on this little program, as it's teenier than the smallest available chunk of floppy anyway.

Change of track again, more frequently than the 7:29 on the final approach to Liverpool Street. If you have Mallard Basic programs that you've written on the PCW or 6128 that use VT52 codes, most of these should work under Dos+ with MALLARD 86 with no conversion (especially if you're expecting an 80 column screen).

Technical terms

And now to round off an otherwise perfect column, a little bit of explanation of some of the more technical terms sometimes found on the outside of computers:

No serviceable parts inside: *It never worked in the first place.*
Mouse Port: *A fine drink from the Mousante region.*
Floppy Disc: *Overheated hard disc.*
On/Off Switch: The thing that feels like a volume control.
Paper Feeder: *Paper eater.*
Mic Ear: *Well known Jugoslavian designer of cassette interfaces.*

ACU

GALLUP SOFTWARE CHART

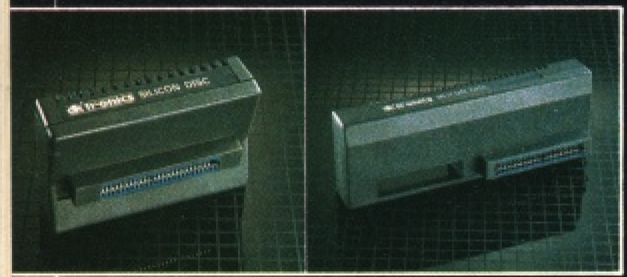
Position	Title / Publisher	Comment	Last month	Market strength
1 (Up)	**Trivial Pursuit** *Domark*	Quirky questions and polished presentation give you as many endless hours of fun as the board game.	2	100
2 (Down)	**Comp. Hits 10 Vol 3** *Beau Jolly*	All your favourites on one tape. Make a good birthday present.	1	95
3 (Up)	**Bomb Scare** *Firebird*	3D game in the alien 8 mould. Bit of a bore unless you are a die hard cartographer.	6	71
4 (New entry)	**Five Star Games** *Beau Jolly*	Good bargain compilation as seen on TV. Ideal first buy for the new computer user. Worth the £9.95 for Spindizzy alone.	ne	64
5 (Down)	**Tomahawk** *Digital Integration*	Fun helicopter flight simulation. Plenty of things to shoot with strategy if you want it.	4	62
6 (New entry)	**Booty** *Firebird*	A golden oldie on the Speccy but new to the Amstrad. Pirates and treasure platforms game.	ne	60
7 (New entry)	**They Sold A Million (3)** *Hit Squad*	Fighter Pilot, Rambo, Kung Fu Master and Ghostbusters go to make up this compilation of past classics.	ne	50
8 (New entry)	**Ikari Warriors** *Elite*	Excellent arcade conversion. Commando-style with two players working together to give twice the firepower.	ne	56
9 (New entry)	**180** *Mastertronic*	Digital danto, a budget game based on the non-intoxicating bar-room skill.	ne	47
10 (Up)	**5 A Side Soccer** *Mastertronic*	Lead your team to victory in this all action sports simulation.	8	43
11 (New entry)	**Konami's Coin Op Hits** *Imagine*	Forget the arcades. Try this compilation of Green Beret, Ping-Pong, Hypersports, Mikie and the amazing Yie Ar Kung-Fu.	ne	41
12 (Down)	**Thrust** *Firebird*	Simple and clever space game. A cross between Asteroids and Lunar Lander.	1	38
13 (Up)	**Last V8** *Mastertronic*	Drive a big macho Chevy round the bends. Overhead view. Quite fun.	17	37
14 (New entry)	**Xeno** *A'n'F*	Hi Tech, twenty first century ping pong from one of the oldest names in software, now part of APS.	ne	36
15 (New entry)	**Scooby Doo** *Elite*	A long time in the making Elite scrapped the original design but the result is very good. Slick sprites and fun.	ne	32
16 (New entry)	**Infiltrator** *Midscape/US Gold*	Usual American stuff about saving the world with spies an' stuff. Looks a bit like Skyfox.	ne	30
17 (Up)	**Batman** *Ocean*	The Caped Crusader flies again. The 3D game which showed that you can teach an old program new tricks.	re	29
18 (Down)	**Speed King** *Mastertronic*	Excellent high speed action motorcycle racing game with large sprites.	9	27
19 (Down)	**Light Force** *FTL*	Excellent graphics and simple to play zap the aliens game.	7	25
20 (Down)	**Glider Rider** *Quicksilva*	Attack an enemy base with the aid of a flying motorbike/hang glider. Novel 3D game.	18	23

Non-mover | Up | Down | New entry

JANUARY 1987

Chart compiled by Gallup/MicroScope

256K SILICON DISC



This is the fastest storage system available for Amstrad CPC computers and is compatible with CPM 2.2, CPM+ and all DK'Tronics peripherals including the 64K/256K memory expansions. When used with CPM+ and our 256K memory the edition disc capacity is a massive 442K (more than the PCW 8512 Ram Disc). It automatically logs on as drive B or drive C in two drive systems and does not require extra power supply.

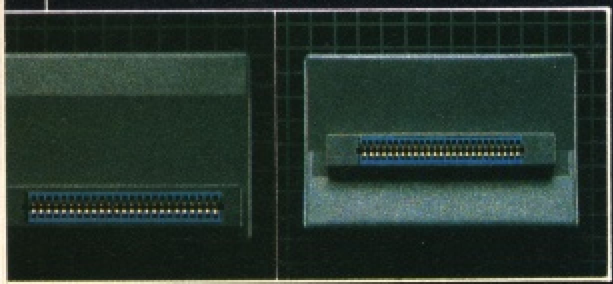
The 256K Silicon Disc is designed to be used with at least one normal disc drive attached. When fitted the directory uses 2K thus leaving 254K for storage, over 70K more than the normal discs.

Data and programs can be exchanged between the Silicon Disc and a normal disc, application programs can then work on the data at vastly increased speed especially on systems with only one normal drive.

Software is contained in an expansion ROM and there are two environments in which the Silicon Disc can be used, BASIC under AMSDOS where all the normal AMSDOS commands are fully supported LOAD, SAVE, MERGE, CAT etc and within CP/M 2.2 CP/M+ where commercial programs are designed to run on multi drive systems.

£99.95 including VAT (464 and 6128)

64K and 256K MEMORY EXPANSIONS



The memory expansions increase the Amstrad 464's internal memory to give a total of 128K or 320K. The 621's memory is increased to 320K. It is compatible with all DK'Tronics peripherals including the 256K Silicon Disc.

It is supplied with bank switching RSX software (464 software on cassette 6128 on disc.

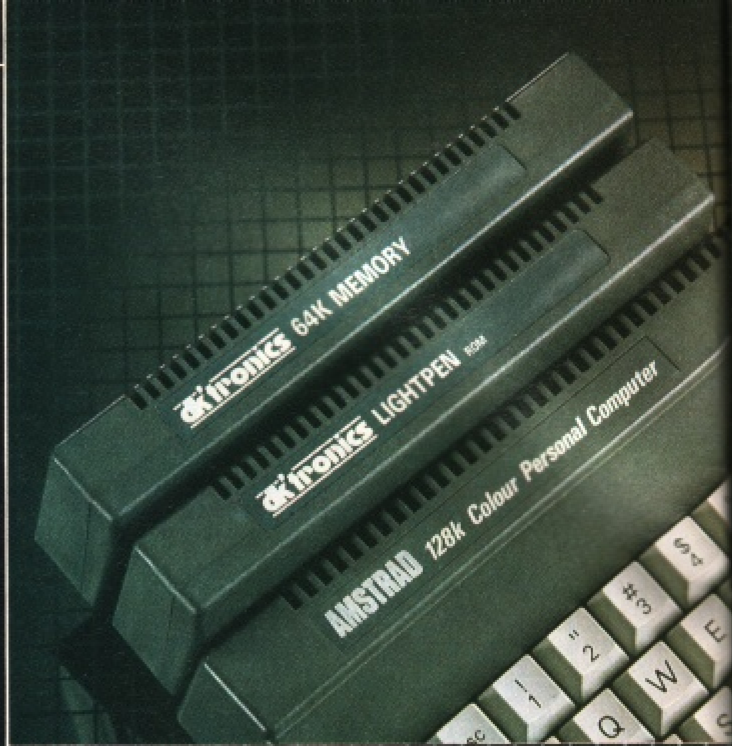
The software adds some BASIC commands which makes it possible to use the second 64K (or 3rd or 4th and 5th in the case of 256K) for storage of screens, windows, graphics and basic arrays. This ability means that you can write much larger basic programs and sophisticated programs that use pull-down menus with ease.

With an expansion fitted on the 464 it then has the same memory configuration as the CPC 6128. It will then run CPM+ with its massive 61K T.P.A. area, opening up an even larger software base to 464 users. When using either of the expansions with CPM 2.2 on the 464 and 6128 computer the T.P.A. is increased to 61K.

The RAM is accessed by means of bank switching using a single I/O port. Memory is actually switched in and out of the 64KZ80 address space in 16K sub blocks (as are the ROMS). The port determines which particular combinations of the original four 16K sub blocks and any new sub blocks from the expansion RAM will occupy the 64K address space at any time. All of this switching is done automatically by the software supplied.

The contents of the expansion RAM are retained if the computer is reset and if the RAM is used for machine code the contents will remain even if the computer crashes.

64K **£49.95** including VAT (464 only)
256K **£99.95** including VAT (464 and 6128)





L/E/A/D FROM B

DK'Tronics have produced this r
enlarge the potential of the 464
and have been designed to co

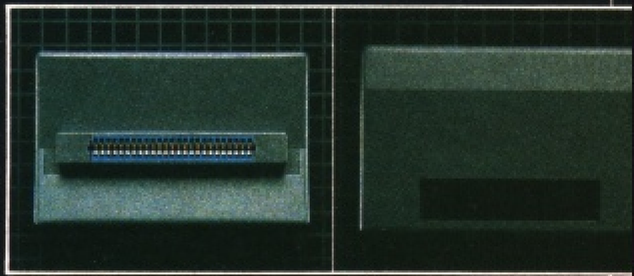




D I N G
BEHIND

his range of powerful peripherals to
464 and 6128 Amstrad Computers
compliment their style and colour.

GRAPHICS LIGHT PEN



The sophisticated graphics package includes a colour palette, nudge control for one pixel accuracy, brush choice, text handling and user defined characters.

It can magnify, shrink, colour fill and create circles, rectangles, lines and curves.

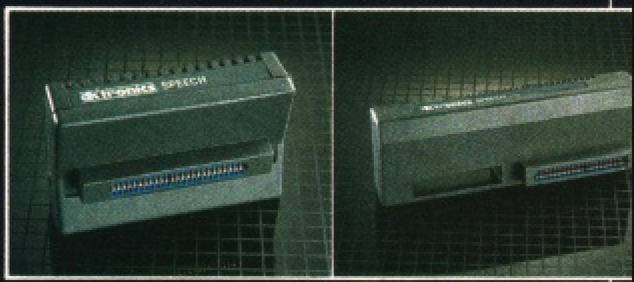
Complex pctures can be easily edited at pixel level using a scratch pad which is magnified to the full screen.

There is picture storage and retrieval, and a pen callibration utility and there is also an Amstrad/Epson compatible printer dump utility supplied on cassette.

There is a cassette version for the 464 and a ROM version for the 464 and 6128.

Cassette **£19.95** including VAT (464 only)
ROM **£29.95** including VAT (464 and 6128)

SPEECH SYNTHESISER



This simple to use speech synthesiser includes a powerful stereo amplifier and two high quality speakers which greatly improves the sound quality of the internal mono speaker.

It uses the popular SPO/256 speech chip and has an almost infinite vocabulary.

It is supplied with a text to speech converter software for ease of speech output creation. Everything you wish to be spoken is entered in normal english without special control codes or characters making it extremely easy to use.

The voicing of the words is completely user transparent and the computer can carry on its normal running of a program whilst the chip is talking. The speech output from the SPO/256 is mono and directed to both speakers.

There is a cassette version for the 464 and a ROM version for both the 464 and 6128.

Cassette **£29.95** including VAT (464 only)
ROM **£39.95** including VAT (464 and 6128)

HOW TO ORDER

DK'Tronics products are available in all good computer stores but may be obtained by completing the order form below and returning it to DK'Tronics or by telephoning and quoting your Barclaycard or Access number.

Orders are normally despatched within 24 hours and if you have any further queries concerning our products do not hesitate to give us a ring or send us a large stamped addressed envelope for our latest free 84 page technical manual covering our Amstrad product range.

Please send me ______

Name ______ Signed ______

Address ______

______

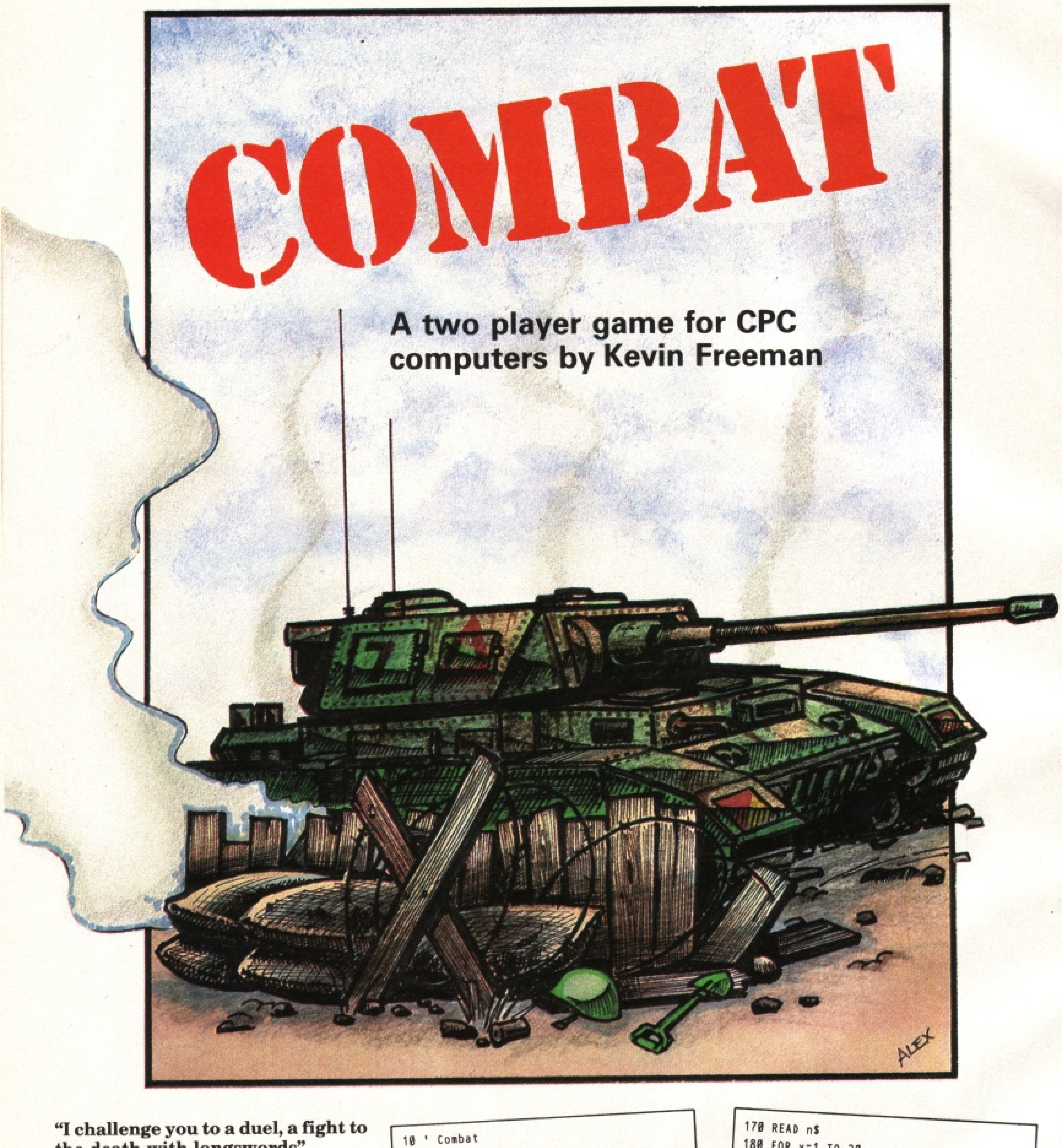
______

I enclose Cheque/PO/Cash for:- Total ______

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"I challenge you to a duel, a fight to the death with longswords"

"No – not swords".

"Guns? Pistols? Blunderbusses?"

"No – no firearms".

"Crossbow? Longbow? Mace?"

"No – too old fashioned".

"What then?"

"Tanks – well armed, well armoured tanks".

Take on your friends in this two player type-in. Drive tanks around a battlefield without exposing yourself but still be bold enough to take aim and fire.

```
10 ' Combat
20 '        by K.Freeman
30 '
40 MODE 0
50 DEFINT a-z
60 SYMBOL AFTER 256:MEMORY &8FFF
70 SYMBOL AFTER 32
80 LOCATE 8,10:PRINT "COMBAT"
90 LOCATE 5,17:PRINT"please wait."
100 GOSUB 1330
110 DIM grid(20,12)
120 SOUND 4,2000,7,13:MODE 0
130 BORDER 0
140 RESTORE 840
150 'show screen
160 FOR y=1 TO 12
170 READ n$
180 FOR x=1 TO 20
190 s=(ASC(MID$(n$,x,1)))-97
200 |SPRITE,(x-1)*2,(y-1)*2,s
210 grid(x,y)=s
220 NEXT x
230 NEXT y
240 'variables
250 x(1)=2:y(1)=11:r(1)=0
260 a(1)=2:b(1)=11:o(1)=3
270 x(2)=19:y(2)=2:r(2)=0
280 a(2)=19:b(2)=2:o(2)=7
290 fire(1)=1:fire(2)=1
300 |SPRITE,2,20,3:grid(2,11)=3
310 |SPRITE,36,2,7:grid(19,2)=7
320 'keypress
```

```
330 ON fire(1) GOTO 350,970
340 'tank 1  keyboard
350 IF INKEY(62)=0 AND x(1)<19 THEN dx=1
    :dy=0:s=1:GOSUB 640:GOTO 400
360 IF INKEY(63)=0 AND x(1)>1 THEN dx=-1
    :dy=0:s=2:GOSUB 640:GOTO 400
370 IF INKEY(69)=0 AND y(1)>1 THEN dx=0:
    dy=-1:s=3:GOSUB 640:GOTO 400
380 IF INKEY(71)=0 AND y(1)<11 THEN dx=0
    :dy=1:s=4:GOSUB 640:GOTO 400
390 IF INKEY(47)=0 AND fire(1)=1 THEN f=
    1:GOSUB 1230
400 ON fire(2) GOTO 420,980
410 'tank 2  joystick
420 IF INKEY(75)=0 AND x(2)<19 THEN dx=1
    :dy=0:s=5:GOSUB 640:GOTO 470
430 IF INKEY(74)=0 AND x(2)>1 THEN dx=-1
    :dy=0:s=6:GOSUB 640:GOTO 470
440 IF INKEY(72)=0 AND y(2)>1 THEN dx=0:
    dy=-1:s=8:GOSUB 640:GOTO 470
450 IF INKEY(73)=0 AND y(2)<11 THEN dx=0
    :dy=1:s=7:GOSUB 640:GOTO 470
460 IF INKEY(76)=0 AND fire(2)=1 THEN f=
    2:GOSUB 1230
470 IF r(1)<10 AND r(2)<10 THEN 330
480 LOCATE 3,25:PRINT "tank      wins";
490 IF r(1)=10 THEN f=1 ELSE f=2
```

```
500 LOCATE 9,25:PRINT f;
510 FOR t=1 TO 2000:NEXT
520 LOCATE 1,25:PRINT"        p to play
    ";
530 WHILE INKEY(27)<>0:WEND
540 FOR f=1 TO 2
550 |SPRITE,(a(f)-1)*2,(b(f)-1)*2,o(f)
560 grid(x(f),y(f))=31
570 NEXT
580 FOR f=1 TO 2
590 IF fire(f)=2 THEN |SPRITE,(g(f)-1)*2
    ,(h(f)-1)*2,9
600 NEXT
610 LOCATE 1,25:PRINT STRING$(20,32);
620 GOTO 250
630 'move tanks
640 IF s>4 THEN f=2 ELSE f=1
650 IF fire(3-f)=1 THEN 680
660 ff=f:IF f=1 THEN f=2 ELSE f=1
670 GOSUB 1110:f=ff
680 IF grid(x(f)+dx,y(f)+dy)<10 THEN RET
    URN
690 SOUND f,1000,5,11,,,5*f
700 dx(f)=dx:dy(f)=dy
710 x(f)=x(f)+dx(f):y(f)=y(f)+dy(f)
720 IF fire(3-f)=1 THEN 750
730 ff=f:IF f=1 THEN f=2 ELSE f=1
740 GOSUB 1110:f=ff
```

```
750 IF a(f)=x(f) AND b(f)=y(f) AND o(f)=
    s THEN RETURN
760 SOUND n,1000,5,10,,,5*f
770 |SPRITE,(a(f)-1)*2,(b(f)-1)*2,o(f)
780 |SPRITE,(x(f)-1)*2,(y(f)-1)*2,s
790 grid(a(f),b(f))=31
800 grid(x(f),y(f))=s
810 a(f)=x(f):b(f)=y(f):o(f)=s
820 RETURN
830 'screen layout
840 DATA aaaaaaaaaaaaaaaaaaa
850 DATA arrrrrrrrrrrrrrrara
860 DATA arrrarrrraarrarrrra
870 DATA araarrrrarrrarrrrra
880 DATA arrrrrarrrrrraarrra
890 DATA arrrrrraarrrrrrrrra
900 DATA araarrrarrrrrrrrrra
910 DATA arrrarrarraaarrarrra
```

```
920 DATA arrrrraarrarrrrrarra
930 DATA arrrrrrrrrarrrraarra
940 DATA ararrrrrrrrrrrrrrrra
950 DATA aaaaaaaaaaaaaaaaaaa
960 '  fire/move shot
970 f=1:GOTO 990
980 f=2
990 p=grid(z(f)+dz(f),v(f)+dv(f))
1000 IF p<10 AND w(f)=0 THEN fire(f)=1:G
     OTO 1090
1010 '
1020 IF p<10 THEN fire(f)=1:GOTO 1060
1030 IF w(f)=0 THEN SOUND f,2000,21,9,,,
     10:w(f)=1:GOTO 1050
1040 z(f)=z(f)+dz(f):v(f)=v(f)+dv(f)
1050 |SPRITE,(g(f)-1)*2,(h(f)-1)*2,9
```

```
1060 |SPRITE,(z(f)-1)*2,(v(f)-1)*2,9
1070 g(f)=z(f):h(f)=v(f)
1080 IF fire(f)=2 THEN GOSUB 1110
1090 ON f GOTO 400,470
1100 'possible hit
1110 IF x(3-f)<>z(f)+dz(f) AND a(3-f)<>g
     (f)+dz(f) THEN RETURN
1120 IF y(3-f)<>v(f)+dv(f) AND b(3-f)<>h
     (f)+dv(f) THEN RETURN
1130 BORDER 13+f
1140 SOUND f,1000,10,15,,,20
1150 r(f)=r(f)+1
1160 fire(f)=1
1170 |SPRITE,(z(f)-1)*2,(v(f)-1)*2,9
1180 LOCATE 5,25:PRINT r(1);
1190 LOCATE 14,25:PRINT r(2);
1200 BORDER 0
1210 RETURN
1220 'shot direction
1230 w(f)=0
1240 z(f)=x(f)
1250 dz(f)=dx(f)
1260 v(f)=y(f)
1270 dv(f)=dy(f)
1280 fire(f)=2
```



```
1290 g(f)=99:h(f)=99
1300 RETURN
1310 'poke code into memory
1320 '         @ &9000-&9324
1330 RESTORE 1490:mem=&9000
1340 BORDER 12,24
1350 FOR dl=1 TO 67:READ d$,ck:rs=0
1360 FOR by=1 TO 24 STEP 2
1370 a=VAL("&"+MID$(d$,by,2))
1380 rs=rs+a
1390 POKE mem,a
1400 mem=mem+1
1410 NEXT by:IF rs<>ck THEN 1450
1420 NEXT dl:CALL &9000
1430 RESTORE 2170
1440 FOR t=0 TO 15:READ k:INK t,k:NEXT:R
     ETURN
1450 SOUND 4,600,6,15:BORDER 6
1460 MODE 1:INK 0,1:INK 1,26
1470 PRINT"data error in line..";dl*10+1
     480
```

```
1480 END
1490 DATA 010E90210A90CDD1BCC90A90,1303
1500 DATA 0E901390C31A905350524954,1088
1510 DATA C500DD4602DD4E04DD7E00FE,1394
1520 DATA 10D0076F2600117090197E5F,899
1530 DATA 237EFEFFC85778FE19D0D504,1781
1540 DATA 11500021B0BF1910FDD179FE,1375
1550 DATA 28D007D55F160019D11A4713,935
1560 DATA 1A4F13C5E51AAE77231310F9,1188
1570 DATA E10100080930040150C009C1,770
1580 DATA 0D20E8C99090D29014915691,1516
1590 DATA 9891DA911C925E92A092E292,1752
1600 DATA FFFFFFFFFFFFFFFFFFFFFFFF,3060
1610 DATA 0410FCFC3C0C0CFCFC3C3C0C,1244
1620 DATA FCFCFC3C0CFCFCFC3C0C0CFC,1920
1630 DATA FC3C3C0CFCFCFC3C0CFCFCFC,1968
1640 DATA 3C0C0CFCFC3C3C0CFCFCFC3C,1536
1650 DATA 0CFCFCFC3C0C0CFCFC3C3C0C,1488
1660 DATA FCFCFC3C0CFC041000000000,1100
1670 DATA 0000000015458A0015458A00,456
1680 DATA 9FCF33339FCF3333DFBF6F00,1461
1690 DATA DFBF6F00DFBF6F00DFBF6F00,1575
1700 DATA 9FCF33339FCF333315458A00,1164
1710 DATA 15458A000000000000000000,228
```

```
1720 DATA 041000000000000000000045,89
1730 DATA 8A2A00458A2A3333CF6F3333,951
1740 DATA CF6F009F7FEF009F7FEF009F,1527
1750 DATA 7FEF009F7FEF3333CF6F3333,1413
1760 DATA CF6F00458A2A00458A2A0000,816
1770 DATA 000000000000041000221100,71
1780 DATA 002211000022110000221100,153
1790 DATA 00679B0000679B0045373B8A,837
1800 DATA 45373B8A459F6F8A459F6F8A,1275
1810 DATA 00DFEF0000DFEF00157FBF2A,1305
1820 DATA 157FBF2A00CFCF0000CFCF00,1209
1830 DATA 041000CFCF0000CFCF00157F,996
1840 DATA BF2A157FBF2A00DFEF0000DF,1299
1850 DATA EF00459F6F8A459F6F8A4537,1317
1860 DATA 3B8A45373B8A00679B000067,879
1870 DATA 9B0000221100002211000022,291
1880 DATA 110000221100041000000000,88
1890 DATA 000000004414280044142800,256
1900 DATA 443C0C0C443C0C0C7DEE9C00,823
1910 DATA 7DEE9C007DEE9C007DEE9C00,1557
1920 DATA 443C0C0C443C0C0C44142800,432
```

```
1930 DATA 441428000000000000000000,128
1940 DATA 041000000000000000000014,40
1950 DATA 2888001428880C0C3C9C0C0C,636
1960 DATA 3C9C006CDDBE006CDDBE006C,1362
1970 DATA DDBE006CDDBE0C0C3C9C0C0C,1194
1980 DATA 3C9C00142888001428880000,608
1990 DATA 0000000000000410003C3C00,140
2000 DATA 003C3C0044DDEE8844DDEE88,1446
2010 DATA 007DBE00007DBE00146C9C28,954
2020 DATA 146C9C28144C8C28144C8C28,876
2030 DATA 001C2C00001C2C0000080400,156
2040 DATA 000804000008040000080400,36
2050 DATA 041000080400000804000008,52
2060 DATA 040000080400001C2C00001C,116
2070 DATA 2C00144C8C28144C8C28146C,724
2080 DATA 9C28146C9C28007DBE00007D,960
2090 DATA BE0044DDEE8844DDEE88003C,1576
2100 DATA 3C00003C3C00041000000000,200
2110 DATA 000000000000000000000000,0
2120 DATA 000000000000000000040800,12
2130 DATA 000408000004080000040800,36
2140 DATA 000000000000000000000000,0
2150 DATA 000000000000000000000000,0
2160 DATA 000000000000000000000000,0
2170 DATA 12,24,19,21,7,3,6,15
2180 DATA 16,8,11,2,20,26,25,0
```

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MATHS makes PICTURES

Bill Headly took some simple arithmetic, threw it together and ended up with some very pretty patterns

Yes, Prime Number? Chances are that when you were at school, maths left you cold. It's sad to say that for most people mathematics is a half-remembered bunch of incomprehensible formulae.

Perhaps it's the way it's taught, perhaps it's just what everyone expects from such an abstract subject. Whatever the reason, mathematics as a living language that both describes and explains much of our world has largely been ignored.

But now there are computers. Computers are mathematical beasts, living, breathing and dreaming numbers. The latest generation of cheap home micros, like the CPCs, can also show numbers and the way they work in some stunning ways.

For the first time, the non-mathematical person can explore the complexities of simple numbers, with very little hard mental slog and very nearly instant results.

It might seem surprising, but there are mathematical byways which have never been given any attention by professional mathematicians and there are discoveries waiting for the keen amateur. Especially one aided and abetted by a computer.

Mathematics and micros have usually been linked in the computer press by little puzzles and pure number-bashing exercises involving Prime Numbers.

Not this time. In the best Blue Peter tradition, we'll take a couple of simple ideas, a smidgeon of Basic and produce some fairly fantastic results on your very own monitor.

Let's start off with a couple of concepts (if you're not too keen on the whys, then run on ahead and type in a listing. While it's running, come back and browse).

Your computer screen is really just a rectangle filled with dots. Depending on which dots get turned on and when, almost anything can be drawn. The characters of a word processor or the spaceships in a shoot-em-up are two complex examples.

Circles and lines are much simpler and have the benefit of being simple to describe using a little mathematics.

We'll be using both circles and points. What the computer will do is take a boxful of points on the screen (the sort of thing maths addicts call a set) and for each of them find out if there's a circle in the vicinity that would have that point on its circumference. If there is, we colour the point appropriately. If not, we leave it blank.

Each point in the set we're looking at has a position inside the box. This is described by two numbers corresponding to the distance of the point from the left hand side of the screen and the distance from the bottom.

For reasons lost in the mists of mathematical time, the distance across is called the x coordinate, and that up the y. A point 50 points away from the left hand side and 43 points up from the bottom is the point 50,43.

To persuade a computer to come up with two numbers is really rather simple. Just give it the lowest and highest values for the two numbers in FOR . . . NEXT loops and it'll give you everything in between.

So we've got our numbers. How do we tell whether they belong to a circle and what colour to make them?

One of the little bits of mathematics which describes a circle is that for all the points on the circumference, x times x plus y times y equals a number.

It doesn't matter too much what the number is, but for any particular circle it's always the same. Different circles have different numbers.

We'll use the number we get from x times x plus y times y to set the colour. As the number will be too big to use directly, the most effective way will be to see if there are any small numbers it divides into exactly and set the colour accordingly.

And so to the program itself. As it's

printed, it will only cover a small area of the screen. This is to speed things up a little.

Given that it only covers about a tenth of the screen, the program still has to generate, check and plot some 2,500 points. This takes some time, even for the speedy Basics found in Amstrad computers.

However, after you've seen a few stunning examples of swirling concentricity, you'll no doubt want to fill your entire screen with a pattern. Do this by increasing the values of BREADTH and WIDTH, but you'll have to have patience!

When you run the program, it'll ask you for three numbers. The first two are the bottom left hand corner of the set of points to look at (mathematically, that is. It will always be plotted in the same place on screen). Good numbers to try are in the range –10 to –100 apiece.

Then there's the distance. Effectively, this is the area of the set you manage to cram into the screen. A small number (less than 20) for the distance will give the effect of looking very closely at a part of the pattern.

Bigger values (200 or 300) give a broader overview of the patterns, showing the grander themes. A good place to start with is values of –40 and –30 for the corner, and 80 for the distance. But try varying everything. There are surprises aplenty.

```
' Pattern Program for PC1512
'     with BASIC 2/GEM
' by Rupert Goodwins 1986

USER SPACE 100
CLS
INPUT "Corner coordinates";a,b
INPUT "Distance";d
 FOR i=1 TO 100 STEP 2
  FOR j=1 TO 100
   x=a+(d*i/100)
   y=b+(d*j/100)
   product=x*x+y*y
   PLOT i+30;j+30 COLOUR product MOD 5
  NEXT j
 NEXT i
```

```
10 REM Patterns
20 REM For CPC 464/664/6128
30 REM by Rupert Goodwins 1986
40 MODE 1
50 INK 0,0
60 LET breadth=150
70 LET height=150
80 INPUT "Corner coordinates?",a,b
90 INPUT "Distance?",s
100 CLS
110 FOR i=1 TO breadth  STEP 2
120 FOR j=1 TO height  STEP 2
130 LET xcord=a+(s*i/breadth)
140 LET ycord=b+(s*j/height)
150 LET product=xcord*xcord+ycord*ycord
160 LET intprod=INT(product)
170 FOR t=1 TO 4
180 IF intprod/t=INT(intprod/t) THEN LET col= t-1
190 NEXT t
200 PLOT i+200,j+200,col
210 NEXT j
220 NEXT i
```

Type this into your PC1512 . . . and this into your CPC

CPC owners might like to try running the program in other modes. This is a good excuse to experiment. For starters, you'll have to change the 4 in line 160 to however many colours there are in your mode.

Other modifications should suggest themselves as the results are produced. PC owners can change the number after the MOD operator in the PLOT line (from 2 to 16) to give a different number of colours in the pattern.

This sort of simple program is often a good place to start to really learn a language – trying different ways to speed up the plotting process or give even more spectacular results.

Those who are just becoming fluent in machine code should find a homegrown version of this program a productive exercise indeed.

If you are intrigued by the patterns that you and your micro produce, you'll probably find the Computer Recreations article in the September 1986 Scientific American magazine (the basis for this article) most enjoyable. **ACU**

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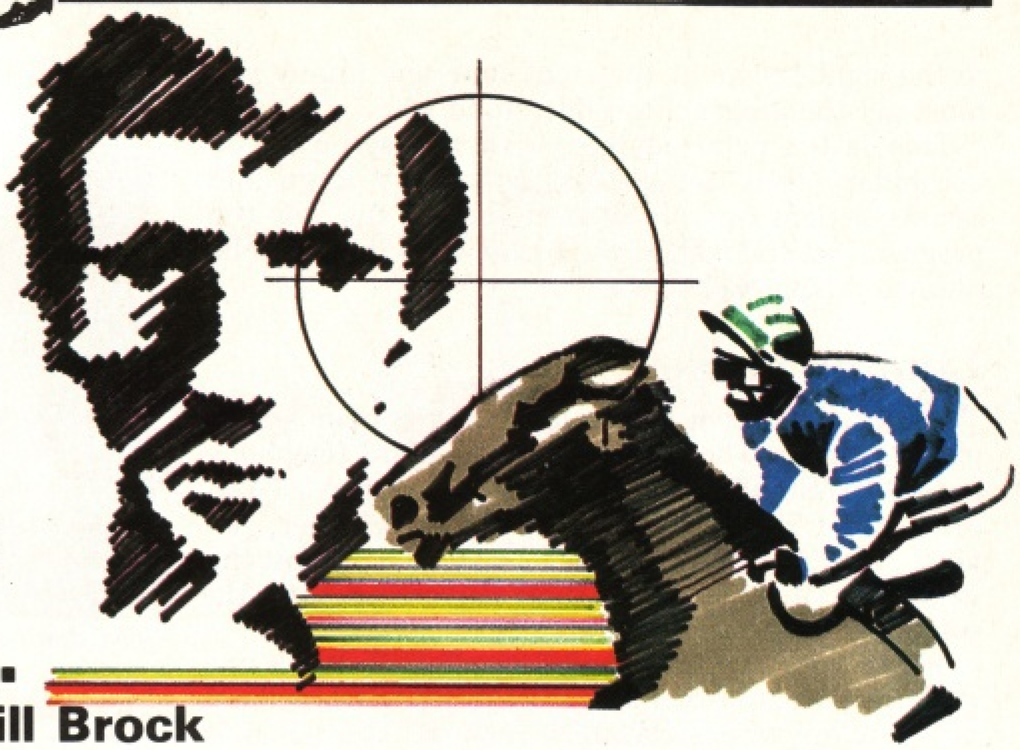
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SEEK AND YE SHALL FIND...

Into adventures with Bill Brock

As a long time fan of the author Dick Francis, I started to play Twice Shy with some uncertainty. All too often the film (or computer game) of the book does not come up to the same standards you perceived when you read the original. I'm pleased to report that the way the program has been written by the Ramjam Corporation is sufficiently novel to take away many of my doubts.

The instructions are fairly long but give you very few clues about the aim of the adventure or any idea whatsoever about what you are expected to achieve. I found that having read the book gave me a head start, but although I knew the probable sequence of events it still remained for me to initiate other characters' reactions for those events to take place, leaving me with many puzzles to solve.

You play the part of a physics teacher, Johnathan Derry. He is a first class shot and is a member of the British Rifle Team. He has also been known to use an airgun as a teaching aid to get the attention from his class of naturally lively schoolboys.

Johnathan is given some cassette tapes and it is up to you to find out their significance. There are hints that they form part of a system to make a man rich by betting on horses. You must find out what to do, where and when.

The adventure starts in Johnathan's house in the suburbs to the west of London. From here you travel around the country in his rather dusty Peugeot to find other critical locations where more information may be learnt to help you on your way.



A day at the races

Mapping is crucial. Travelling around the streets will lead you to Johnathan's school, the local high street and the M25 motorway. Motorway travel is quick and will take you to other interesting places. Just remember that motorways are not the place to cross from left to right – there is always a central reservation.

It is best to draw a 'road map' and then separate small maps for the groups of locations you find along the route. Trying to draw a coherent continuous map will tax your topography and require a great deal of work with an eraser.

Gas guzzling

Anyone driving a car will know all too well that it requires feeding at regular intervals. There is a local petrol station, so use it. Of course as in real life getting petrol costs money. Among all your other problems is the need to ensure that Johnathan has an adequate supply of ready cash.

This brings us to the second program on the reverse side of the cassette. It can be run as a separate program or accessed as part of thc adventure program.

There is one location in the adventure that describes the entrance to the racecourse at Newmarket. At this point you can decide to go for a day at the races. Any money won here can be added to the amount you are already carrying.

The racing program is simplistic and is very similiar to an old ZX Spectrum program called Derby Day. You are given the runners in the next race and horses' odds. You place your bets and then watch the horses race across the screen to the winning post. Win, and your winnings are credited to you. Lose and try again.

The racing program is good fun, especially for the younger members of the family, but does not really add a great deal to the adventure, other than giving your overheated brain a short rest from deciding what to do next.

There are three crucial parts to solving this adventure. One, as is often the case, is to draw accurate maps of the different locations. Second, you must talk

to the right people at the right time and finally you must get the program to understand you.

This latter point merges with the second. The vocabulary does not appear to be very large and certain actions have to be expressed in the way the program wants rather than the way it might be natural to approach them.

Limited parser

The first inclination of this is when you hear a telephone ringing. The display uses the word telephone but ANSWER TELEPHONE gets the response "You can't". GET TELEPHONE does not work either, you must enter ANSWER PHONE. A small point but the beginning of a suspicion that conversing with the computer may hold a few problems.

When your trusty Peugeot needs petrol you can visit the garage – simple, but BUY PETROL will not get you anywhere. What is needed this time is something like SAY TO THE GARAGE HAND "FILL CAR".

Many games suffer from this type of restriction, but what makes it worse in this case is that you must talk to some of the other characters to initiate further stages of the game.

Having found that your commands need to be so specific and thinking that you know who to talk to but finding that you get no sensible responses can easily cause extreme frustration as you do not know whether it is your input command or your logic that is at fault.

This is really a major drawback to what is a clever interpretation of a good novel. I have found the game intriguing and enjoyable, partly I have to admit because of my love of Dick Francis' books. Reading the book first will certainly give you a better chance at understanding the game – and with a bit of luck you'll become another fan of the author.

The approach is novel and will tax your imagination – providing you have the patience to overcome the drawbacks of vocabulary and parser.

I am not a complete fan of those games that offer incredible parsers that will understand such involved sentences as GET THE KEY FROM MY POCKET AND UNLOCK THE CASTLE DOOR THEN USE THE OTHER KEY TO OPEN THE SMALL BRONZE CASKET, but I do feel that you should not have to spend too much time in making a program understand what you know to be the correct action.

Twice Shy is well worth reading and the adventure will add to your pleasure. Just do not expect it to understand everything you say the first time round.



The devil within the PCW

Not only disc only but PCW only too!

A program raved about for the Atari ST and Commodore 64/128 is now available for the Amstrad PCW – "The Pawn".

Written by Magnetic Scrolls and distibuted by Rainbird Software, The Pawn has received many accolades for its graphics and its command interpreter. The PCW version lives up to its predecessors, and although the graphics are by necessity only in green and black they are still better than anything else I have seen on this machine.

The adventure is a mixture of ancient and modern, a land where dwarves and magicians still live mixed in with thermo nuclear devices and oblique references to television. It is a delightful mixture of classic adventure and modern satire.

The program makes much use of the disc and some disc changing is necessary at times. The graphics are excellent and the pictures nearly fill the screen.

Fortunately you can scroll the picture up to allow plenty of room beneath for the long and detailed textual descriptions that are another hallmark of this game.

Fairly comprehensive editing commands are becoming more common nowadays, especially as input commands of greater complexity are accepted and acted upon. Having just typed in a string of commands, you will soon get frustrated if you have made a simple spelling mistake and then have to type everything in again.

The Pawn has a most useful editing facility, allowing the calling back of your last command for re-editing. Communicating with the game is easy as



there is a large vocabulary and the parser recognises many different ways of saying the same thing.

Smart listener

The parser is quite the most intelligent I have come across and an example given in the instructions shows that it will understand such an involved command as GET ALL EXCEPT THE CASES BUT NOT THE VIOLIN CASE THEN KILL THE MAN EATING SHREW WITH THE CONTENTS OF THE VIOLIN CASE.

For all that the parser seems so friendly, do not assume that is working solely for you. You must still retain the true adventure's cynical attitude and double check your surroundings. Not all is seen at a first glance, and just because you have felt in your pockets, do not assume there is nothing there except a pocket

In several locations you must talk to characters you meet. As with other commands issued this is easy to accomplish. Whether you ask the right questions is another story!

If you get stuck a number of hints given may help you. They are in the form of a series of two character blocks: NB ZO ZX B7 NH 78 O0 GD. Type in HINT; followed by this code. There are several sets of code for each likely problem, the first often gets a flippant response; the third is usually quite useful.

A couple of these codes are too long for the input buffer of the PCW to accept (the Atari ST has a larger buffer). Fortunately neither is of vital importance, so do not get all worked up when you find them.

Draw your maps with care, as movement from one location to another is not always quite as you would expect it to be. Save your game position regularly and examine everything very carefully.

A thoroughly recommended game, with a true adventure dressed up in the most modern mixture of programming technique and off beat humour.

Happy New Year

It is now 1987. The cover date of this magazine may read February, but it is still the first issue out this year. Should we look at 1986 and learn from what is past? All the letters I have had seem to appreciate the straightforward and honest appraisal of reviews but there is an underlying hint that you would like more hints and clues to many adventures.

We do operate our Help League, which offers a direct Help line to those in need. It sometimes takes some time for you to get an answer, simply because of the post first going to the Amstrad User offices and then having to be posted on to me and possibly forwarded again to other members of the League.

I have always been a little dubious of the indiscriminate hints and clues offered in magazines, as they cannot ever be up to date for the person originally requesting help.

There is often a lead time of up to two months between the copy for this column and its eventual publication, and with the best will in the world one cannot improve on that a great deal.

But if you the reader want more clues we will try to provide them. They can appear in several guises, in plain English, written in a simple code or written in a cryptic form for you to work out. Which would you prefer – write and tell us!



To start the ball rolling here are a some cryptic clues from Joan Pancott of Dorset:

Dungeon Adventure: 1) If a siren you are nearing, a poppy pod will stop you hearing. 2) Never fear if you meet a black sphere, just find its brother and you won't see another.

Return to Eden : 1) Platforms are a weighty problem, so six to the south and you to the north. 2) You can bet it is six of one or half a dozen of the other.

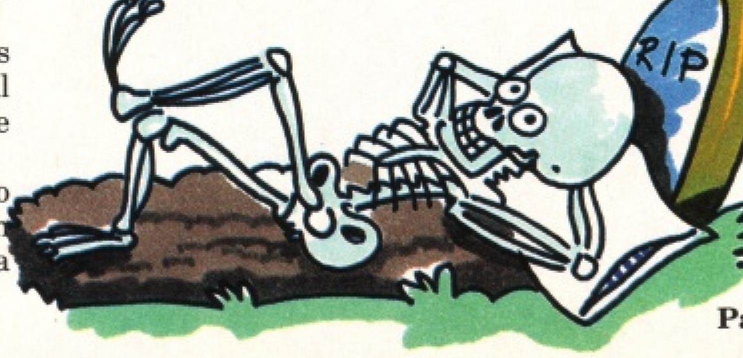
Joan has solved a number of adventures and seems to thrive on the requests for help on games she has finished. Her latest adventures finished are: The Price of Magik, Seas of Blood, Emerald Isle, Brawn Free, Qor, The Boggit and Dungeon Adventure. If you are stuck on any of these, her telephone number is 0305 784155.

More cryptic clues came from Barry Newell of Essex:

Jewels of Babylon: 1) The lion likes seafood. 2) The crocodile does not like bangs. 3) The cannibals cannot measure time very well. 4) Test the crab's hearing.

Message from Andromeda: 1) It is rude to point in the mirrored room. 2) The plants need a gardener. 3) Give the skeleton a decent grave, you may get something in the process. 4) Beam me up Scotty!

Do you have a few hints that you feel will help other adventurers? If so, send them in and we'll see what we can use. This column is always open to suggestions (well, some suggestions anyway!) so let me know if you want to see something special, either a review or a how to do it section.





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BASIC WITH A Z

Rupert Goodwins explores a less exotic alternative to Basic 2 on the PC1512

For various reasons people become dissatisfied with off-the-shelf applications for their PCs. Maybe it's a feeling of "I could do better than that", or some implacable barrier placed between them and what they want to do by a design fundamental of the application.

Or maybe imaginative users just want to explore the capabilities of their computer. What they need is a language.

The most popular one for home computers is undoubtedly Basic. The lower end games computers invariably come with a version built-in, and most PCs come with a dialect on disc for free. The Amstrad PC1512 has Locomotive's Basic 2 stashed away on one of the system discs.

But these free Basics have drawbacks. Sometimes they're machine specific, so if you change your PC, or want to sell your programs to other users, you have a problem.

Invariably they're interpreted, which means they're translated, checked and run a bit at a time. This slows business down no end. But you can always go out and buy a better Basic.

Compatibility

ZBasic claims to overcome these stubborn problems and to be that better Basic. For starters, there's a version for almost every machine ever to cross the Big Pond – it's an American product – and one for our very own Amstrad PC. So you can write a program on a PC and it can be copied across to a CP/M machine, an Apple II, even a Macintosh, tosh. All the graphics, all the disc commands, all the printer handling is the same in every machine.

ZBasic's other claim to your chequebook is the fact that it's a compiler. This means that the computer spends some time at first checking the program and translating it into machine code. Then it runs the machine code.

As you then have a copy of the machine code version, the next time you want to run your program you don't have to check and translate. Everything goes much faster.

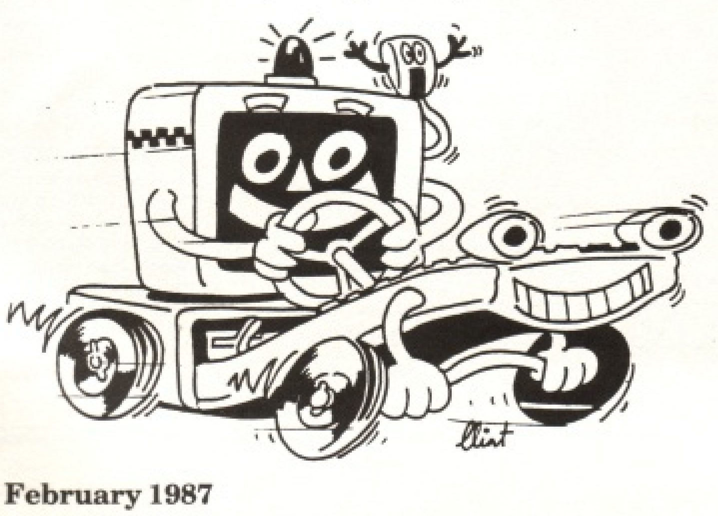
But how does ZBasic do the job? Unusually for a compiler, it looks to the user like an interpreter (confused?).

Compilers tend to have a blunderbuss approach to running programs during development. You compile the program, run the machine code, try and spot any errors, and then go back to your original code and sift through it, searching for the offending line. It can be a time-consuming business.

With ZBasic it's much easier. If a bug occurs you can re-enter the editor at the point where the problem lies, fix it, and try again. You can also, from the editor, try out one-liners and they're compiled, run and the editor returned to automatically.

If you've never used a compiler you'll probably take this kind of thing for granted. If you have used compliers before – for any language – you'll appreciate what this means.

All this is well and good, but not terribly useful if you can't actually do anything worthwhile. Fortunately ZBasic has a lot going for it in terms of built-in functions. Graphics-wise it's got line, box and circle drawing (the latter two with a fill option), and mouse support, as well as the traditional plot commands.



They've even invented a new mathematical measurement of angle, the BRAD. You might know that there are 360 degrees, and 2 pi radians around a circle's circumference. There are 256 BRADs. It's not just trigonometrical tomfoolery either, as it helps to keep speed up. There are some nice'n'fast SINs and COSs too.

Many modes

Unlike Basic 2, which always uses the multicolour hi-es mode and Gem for graphic handling, ZBasic can work in any mode using the same commands and coordinates. In the text-only modes ZBasic draws lines by positioning characters around the place.

Not using Gem has other advantages, as the drawing commands are considerably swifter. ZBasic supports all the colours, too. It can't handle the Amstrad PC's special graphic mode though, and you're stuck with the one font.

ZBasic is a good deal more traditional in other areas than Basic 2. You can call machine code programs (or any other program), CHAIN in other programs, and read and write memory directly. These, together with some well thought out memory management, mean that much bigger programs can be written in ZBasic.

Super accuracy

The built-in mathematics are especially good, as you can choose to trade off some speed to increase accuracy and precision. Most Basics can cope with 8 or 16 digit numbers without losing accuracy. At maximum precision ZBasic can deal with 54 figure accuracy.

This is phenomenal, and as far as I'm aware unique. There are some accounting procedures that can't use ordinary Basic, as pence get dropped past the hundred million pound mark. Even if an Italian accountant was measuring the national debt in picolire, ZBasic would be up to the job.

Almost every other function ever incorporated in a Basic seems to be there. Where something is missing, the handbook usually gives ideas on how to replace it with the functions or commands available.

This is made particulary practible, as you can define multi-line functions (almost procedures). So if you wanted to take a string, extract two numbers from it, multiply them together and return the result as a string, you could define a function to do it.

Other aids to program strucure include WHILE...WEND, IF, LONGIF

(which lasts over several lines), ELSE, XELSE (extended ELSE for use with LONGIF), and DO... UNTIL. Line numbers are compulsory, but you can give a line a label, so GOSUB print—label is allowed – and encouraged.

File handling is also well implemented. Both serial and random access file types are supported. This means that databases can be knocked up with the minimum of hassle. Random access file handling is one of those things that hardened programmers blanch at and scare their kids with, as to get it right takes a very cool approach indeed.

Some of ZBasic's commands in this area certainly look hairy enough, but the documentation takes its time and has plenty of explanatory diagrams and programs to smooth the learning curve. However the structures do not offer the power of Jetsam which is built into Basic 2.

Read all about it

The documentation is impressive in other areas as well. It's a large paperback book, some 400 pages worth, containing just about everything you could ever want to know about ZBasic. It is quite well structured, beginning with a helpline telephone number writ large – the sign of a confident company. Shame it's in America.

The manual continues with an in depth description of the editor, a tutorial-style description of all the commands, a reference section, and then four appendicies for the four main types of machine ZBasic currently runs on.

Also included are sections on converting programs from other dialects of Basic, good programming practices, and using the debugging tools provided such as tracing, error trapping, and Break enabling.

The style is clear, and has lots of hints thrown in. I'm not sure a novice would appreciate the speed at which the descriptions go sometimes, or the assumptions it makes about the user's knowledge of computing terms.

Weak editor

One of ZBasic's major failings is the line editor. Perhaps it's a sign of its long and venerable ancestry, or a shortcut to compatibility, but it uses a collection of keys and Esc or Enter to do its dirty work.

So to change the word GOTO to GOSUB in a line, you'd have to place the cursor under the T, type C2 (for change two characters), type SU, then type I (for insert), B and then Esc to get out of insert mode.

No doubt it would all come naturally after a few weeks, but for the molly-coddled micro owner used to Delete keys and word processors it seems strangely out of sync with the rest of ZBasic. Oh, and you've got to enter commands and instructions in UPPER CASE. Annoying.

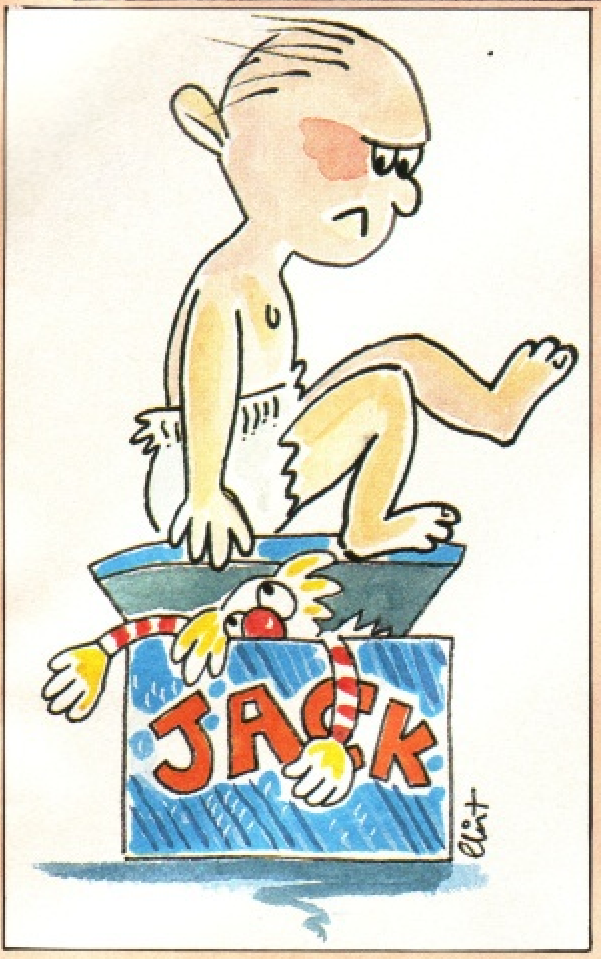
Of course you can edit your program in Wordstar, or any editor that can produce plain brown Ascii files, but then you lose a lot of the advantages of interaction.

So, in conclusion, ZBasic looks like a very good idea for an experienced Basic programmer who understands his machine and the things he wants to do with it. It's certainly a good bet for anyone wanting to write a game or application for a lot of machines. It's fast, friendly and full of features.

On the down side, the editor's a little quirky, and the documentation might be a touch too techy for beginners. But this isn't really a language for beginners. It's for those who are serious about their computing. And it works.

Product: ZBasic
Supplier: HiSoft, 0582 696421
Price: £49.95

ACU



Ramming in those graphics

It's true, gentle reader – size really IS important. Peter Green's machine code series continues with a program to squash those awkward 16k graphic screens into the handy, economy-sized ram space of your computer.

The Amstrad screen is nice and big, much better than those pokey little Spectrum or MSX screens. Until you want to fit more than one screen in memory at once and flip between them.

At 16k a screen, loading up two knocks out 70 per cent of the 45,000-odd bytes remaining after the firmware has grabbed its share.

And even if you threw away all the firmware, loading three screens would be impossible, as they would use the whole bottom 48k without a single byte free for the code to actually load them up into the screen memory.

Compressing graphic screens is also a useful technique for users with tape-based systems, as it can cut down considerably on loading times. On the other hand, disc users might appreciate being able to fit more screen dumps onto a floppy disc.

Cut it out

There are various compression algorithms, but every one relies on one thing – the existence of patterns or repetitive sequences in the data to be compressed. The compressor has to find the patterns and replace them with some identifier which takes up less space.

The expander routine simply replaces each identifier in the compressed data with the set of data it represents.

In many cases where the frequency spread between the most and least frequent patterns is quite high, a compressor may actually replace an infrequent sequence of data with an identifier which is longer. The relative scarcity of such patterns offsets their increase in storage space.

Virtually any graphic screen is going to have some areas with a repeat of data – large areas of a single colour, say, or a section of stipple shading – interspersed with the more detailed pixel patterns.

The compressor here breaks a screen up into sections of data which repeat and sections which don't. Each section is prefixed with a count byte which tells the expander program what to do with the subsequent byte(s) in the compressed data.

There are two types of section: A string of n bytes all the same, or a string of n bytes all different. We need the top bit of the count byte to flag which type of data is following, leaving the bottom seven bits for the actual number. Hence the maximum size of screen data that a section can represent is 127 bytes.

Now if the section is one for a string of bytes each different to its neighbour, the compressed section actually consists of the same data as in the screen, plus the extra prefixed count byte. That is, the data has got one byte bigger!

On the other hand, a set of 127 bytes all the same will be stored as the count byte, plus the actual byte value from the screen. 127 bytes down to 2 is a compression of 98.4 per cent – not too shabby!

If a screen could be drawn in which no two consecutive bytes were the same, its compressed size would be actually be 131 bytes greater than the original.

This is because the compressor turns the 16384 bytes into 129 127-byte sections, a final 1-byte section, one count byte for each of the sections and a zero stop-byte which tells the expander it's reached the end of the data.

A completely blank screen would, by a similar calculation, reduce to 130 two-byte sections plus the stop byte, a massive reduction.

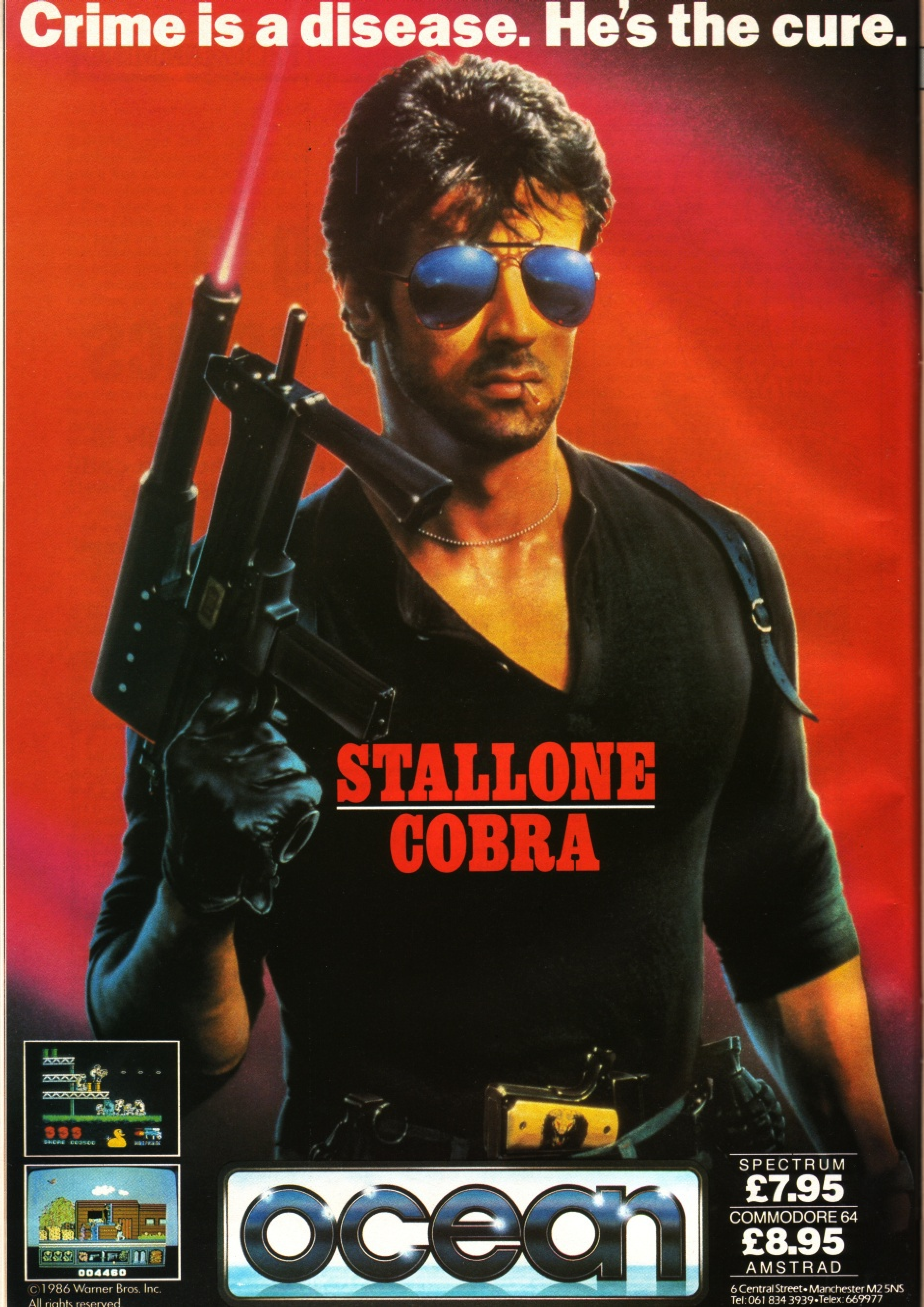
In practice, the compression achieved by the program will lie somewhere between these two extremes. I tried running the title screens for two commercial programs I've been involved with through the compressor.

The screen from Amstrad Fourmost Adventures which has some large areas of pattern reduced to 25 per cent of its original size. Green Beret on the MSX (ported using a variation of my ZXLOADER program), while having much greater detail, still squashed down to 70 per cent.

The Crush Hour

Listing 1 is the assembly language program for the compressor, produced using Arnor's Protext word processor and assembled on Maxam. Readers with other assemblers may need to reduce the length of the labels to six or eight characters, and replace WORD, TEXT and RMEM with DEFW, DEFM and DEFS.

Otherwise, no problems. The program sits at &4000 and processes data



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from the screen memory (&C000-&FFFF) into a compressed form which starts just above the program variables at .smallpic.

The EQU $ is a fairly universal assembler command and means "the value of the label is to be the current value of the program counter". That is, smallpic equals the next free address after the program and that's where the compressed data is to be found when the program has run.

The program uses only one firmware call, the ubiquitous TXT_OUTPUT, which is defined at the start.

Then the variables are set up: IX points to the running count as a section is built up (and IX+1 holds the previous byte from the scan for use in the comparisons), B and C are initialised to column zero, row zero in one instruction (saves a byte), and DE is set up as a pointer to the area where we will store the compressed data.

The subroutine .start is used to get the next two bytes from the screen and decide whether to start a sequence of n bytes all the same, or n bytes all different.

However, each type of sequence loops back to .start when a sequence of the opposite type is encountered, so the one CALL to .start actually converts the entire screen.

On return from the CALL the zero stop byte is written to the end of smallpic (LD A,0 takes two bytes, while XOR A takes one and achieves the same result, as XOR A really means XOR A with A and any number XORed with itself gives zero).

To save the data in its compressed form you'll need to know how long it is, so the string *sizemsg* is printed – the CHR$(12) that starts the message clears the screen.

The length of the data is calculated by subtracting the start address from the end, and .printHL converts the 16 bit hex result to a string of Ascii codes and prints it.

The text cursor is moved to the start of the next line with a carriage return/line feed (hey, hey, let's be neat out there) and the program returns from whence it was called. You can use this as a subroutine in a larger machine code program, or call it directly fom Basic with something as simple as:

```
10 MEMORY &3FFF
20 LOAD "compress.bin",&4000
30 MODE 1 : REM or whatever
   mode the screen is in
40 LOAD "picture",&C000
50 CALL &4000
```

When it's done, the length is on-screen and you are given the start address when the assembler assembles



the machine code so you can save the data as a binary file.

More advanced programmers will know that the CALL &4000 can pass the address of a Basic variable to the machine code, which can then insert the data length and pass it back to Basic to automate the SAVE process.

This will require small changes to the listing which are left as an exercise to the reader: (hint: Basic passes the address of CALL parameters in the IX register, so replace IX with IY in the compressor program).

The printHL subroutine is another useful library routine that has an abundance of uses, like the print routine which turns up here again. It calls A_to_BCchars twice, converting the two nibbles of the hex number in A into their equivalent Ascii character codes in B and C, and prints them.

This in turn uses two routines which convert the high and low nibbles to Ascii individually. The assembler comments are sufficient to explain these trivial bits of program.

Cut down to size

The code which begins at .start first checks for the very unlikely situation where the compressed data has ended up longer than the original, in which case it prints out a suitable error message and quits.

Otherwise it tries to get a byte from the screen. If the carry was set, it succeeded; if not, there are no more bytes left and the routine returns to the main body of the program.

Otherwise, the program stores the byte in the test variable IX+1 and in a temporary area as if it was the start of a string of characters all different. It initialises the section count to 1, then tries to get the next byte – it needs two bytes to decide which type of section it is starting to build.

If there's no byte available, the screen end has been reached so the one byte we got in the last paragraph can be sent as a same-byte section of size 1, by routine .out_same, and processing terminated.

If there is a second byte, the counter is incremented and the byte compared with the previous one, then stored as the new test byte. The result of this test (equality or not) determines which of two loops the program enters, .same or .different.

The two loops are similar in action. Each continues to fetch bytes from the screen, compare them to the previous byte and continue looping round until a pair from the opposite type of section are found or the byte count exceeds 127.

In either case the top bit of the count is set to indicate the type of section and the section count is stored in the .smallpic area pointed to by DE. The section data is appended (either the single byte from (IX+1) for .out_same, or the (count) bytes from the string of different string storage area for .out_diff.

Here we use LDIR, a very useful Z80 instruction which automatically moves BC number of bytes from the location pointed to by HL to the location pointed to by DE.

If a section was terminated by hitting a section of the opposite type, then the screen coordinate pointer in BC has to be back-spaced over the bytes that don't belong. In any case, when a section is terminated for any reason (except the end of screen), the program loops back to .start to begin a new section.

The routine .get_byte needs to do some 16 bit arithmetic to convert the screen coordinate to an actual screen address. Neither of the two firmware routines are any use, as one goes from character coordinates to a screen address, the other from pixel coordinates.

We are working from screen byte coordinates and need our own calculation. The only messy bit is the multiplication by 80, which as mentioned last month can be accomplished by a series of additions.

Blow up

Listing 2 gives the corresponding expander program, which is relatively trivial. It simply fetches a count byte from the compressed data and depending on whether the top bit is set or not, outputs the next byte n times, or the next n bytes.

If you think about it, no section can have a count of zero, so that can be used as a unique end-of-data marker.

```
Screen shrink program

org &4000

.txt_output        EQU &BB5A

LD IX,count        ;point to byte counter and storage variable
LD BC,0            ;starting at column 0, row 0
LD DE,smallpic     ;pointer to storage of compressed data

CALL start
XOR A
LD (DE),A          ;send a terminating zero byte
INC DE
LD HL,sizemsg
CALL print
EX DE,HL
LD DE,smallpic
SBC HL,DE          ;carry is clear here from the OR A in .print
CALL printHL       ;display size of compressed screen
CALL crlf          ;print a carriage return/linefeed
RET

.error
POP BC             ;get rid of return address
LD A,7
CALL txt_output ;do a beep to attract attention!
LD HL,errmsg

.print
LD A,(HL)
INC HL
OR A
RET Z
CALL txt_output
JR print

.crlf
LD A,13
CALL txt_output
LD A,10
CALL txt_output
RET

.sizemsg
TEXT 12,"Size of compressed screen = &",0

.errmsg
TEXT 12,"Screen too complex",13,10,0

.printHL
LD A,H
CALL A_to_BCchars ;convert to ASCII codes
CALL txt_output
LD A,C
CALL txt_output
LD A,L
CALL A_to_BCchars ;convert to ASCII codes
CALL txt_output
LD A,C
CALL txt_output
RET

.A_to_BCchars
LD B,A             ;store A register
CALL AL_to_ASC     ;convert low nibble to ASCII code
LD C,A             ;store it in C
LD A,B             ;get hex number again
CALL AH_to_ASC     ;convert the high nibble
LD B,A             ;store in B
RET

.AH_to_ASC
RLCA
RLCA
RLCA
RLCA               ;swap top and bottom nibbles

.AL_to_ASC
AND &0F            ;throw away top nibble, so A is a single hex digit
ADD A,48           ;convert number (0-15) to ASCII code (48-63)
CP 58              ;this sets the carry if ASCII code is numerical (48-57)
RET C              ;code is correct, so quit
ADD A,7            ;else convert 58-63 to 65-70, ASCII for "A" to "F"
RET


.start
LD HL,smallpic+&4000
OR A
SBC HL,DE          ;gone too far?
JP C,error         ;quit with error message if screen cannot be compressed
LD HL,diffstring   ;pointer to temporary store of different data
CALL get_byte      ;get a byte from the screen
RET NC             ;none available so we've finished
LD (IX+1),A        ;else store in test byte
LD (HL),A          ;and "different string"
INC HL             ;increment pointer
LD (IX+0),1        ;set count to 1
CALL get_byte      ;get next byte from screen
CALL NC,out_same   ;if no more bytes, send current one as a same-byte, length 1
RET NC             ;and quit
INC (IX+0)         ;else increment count to 2
LD (HL),A          ;store new byte in different string
INC HL             ;increment pointer
CP (IX+1)          ;compare new byte to previous byte
LD (IX+1),A        ;and store new byte in test location
JR Z,same          ;if same, proceed as string of same bytes
                   ;else proceed as a string of different bytes

.different
CALL get_byte      ;get next byte from screen
CALL NC,out_diff   ;if none, send what we've got
RET NC             ;and quit
CP (IX+1)          ;else compare with previous byte

CALL Z,back_diff   ;if same, decrement count and step back two screen bytes
CALL Z,out_diff    ;send the remaining list as a different byte string
JR Z,start         ;and start a new sequence

CALL add_diff      ;else add byte to different list and update count/test byte
JR NC,start        ;NC flags count overflow, hence starting new sequence
JR different       ;else continue as different string

.same
CALL get_byte
CALL NC,out_same   ;if none, send what we've got
RET NC             ;and quit
CP (IX+1)          ;else compare with previous byte

CALL NZ,back_same ;if different, step back one screen byte
CALL NZ,out_same   ;send the remaining list as a same byte string
JR NZ,start        ;and start a new sequence

CALL add_same      ;else update count
JR NC,start        ;NC flags count overflow, hence starting new sequence
JR same            ;else continue as same string

.get_byte
LD A,C             ;get row
CP 200             ;end of screen?
RET Z              ;quit with NC flagging end of screen
PUSH HL            ;save different buffer pointer
PUSH BC            ;save screen coords

AND 7              ;row MOD 8
ADD A,A
ADD A,A
ADD A,A            ;8*(row MOD 8)
ADD &C0
LD H,A
LD L,B             ;HL=&C000 + &800*(row MOD 8) + column
PUSH HL            ;save value so far
LD B,0
SRL C
SRL C
SRL C              ;BC = row DIV 8 (R)
PUSH BC
POP HL             ;HL = R

ADD HL,HL          ;R times 2
ADD HL,HL          ;R times 4
ADD HL,BC          ;R times 5
ADD HL,HL          ;R times 10
ADD HL,HL          ;R times 20
ADD HL,HL          ;R times 40
ADD HL,HL          ;R times 80
POP BC             ;get other value
ADD HL,BC          ;HL=&C000 + &800*(row MOD 8) + (row DIV 8)*80 + column

POP BC             ;get column, row
INC B              ;next column
LD A,B
CP 80              ;reached end of row yet?
JR NZ,gb2          ;skip if not
LD B,0             ;else set column zero
INC C              ;and increment row

.gb2
LD A,(HL)          ;get the screen byte
POP HL
SCF
RET                ;set the carry to flag success

.add_diff
LD (IX+1),A        ;store new byte in test location
LD (HL),A          ;add byte to different string
INC HL             ;increment pointer
INC (IX+0)         ;increment count
LD A,(IX+0)        ;get count
CP 127             ;reached 127 yet?
RET C              ;return with carry set if not

.out_diff
LD A,(IX+0)        ;get count
LD (DE),A          ;send count to compression data
INC DE             ;increment pointer
LD HL,diffstring ;start of different string list
PUSH BC            ;save coords
LD C,A
LD B,0
LDIR               ;move different list into smallpic. DE automatically correct
POP BC             ;get coords
RET                ;return with carry preserved from previous routine

.add_same
INC (IX+0)         ;increment count
LD A,(IX+0)        ;get count
CP 127             ;reached 127 yet?
RET C              ;return with carry set if not

.out_same
LD A,(IX+0)        ;get count
SET 7,A            ;set top bit of A
LD (DE),A          ;send count to compression data
INC DE             ;increment pointer
LD A,(IX+1)        ;get test byte, which is also the 'same' byte
LD (DE),A          ;send it
INC DE             ;increment pointer
RET                ;return with carry preserved from previous routine

.back_diff
PUSH AF            ;save flags
DEC (IX+0)         ;decrement count
POP AF
CALL back_same

.back_same
PUSH AF
LD A,B             ;get column
SUB 1              ;decrement column
JR NC,bs1          ;skip if no borrow
DEC C              ;else set previous row
LD A,79            ;set last column

.bs1
LD B,A             ;replace column
POP AF             ;restore flags
RET

.count             WORD 0
.diffstring        RMEM 127
.smallpic          EQU $
```

Listing I

```
Expand Listing

.expand ;enter with HL pointing to compressed data
LD DE,0 ;starting at column 0, row 0

.ex2
LD A,(HL) ;get byte from compressed data
INC HL ;point to next byte
OR A ;end-of-data marker?
RET Z ;quit if so

LD C,A ;control byte to C
LD B,A ;and to B
RES 7,B ;make sure counter top bit reset

.ex3
PUSH DE ;save screen coords
PUSH HL ;save pointer to compressed data

LD A,E
AND 7 ;row MOD 8
ADD A,A
ADD A,A
ADD A,A ;8*(row MOD 8)
ADD &C0
LD H,A
LD L,D ;HL=&C000 + &800*(row MOD 8)
  + column
PUSH HL ;save value so far
LD D,0
SRL E
SRL E
SRL E   ;DE = row DIV 8 (R)
PUSH DE
POP HL  ;HL = R
ADD HL,HL ;R times 2
ADD HL,HL ;R times 4
ADD HL,DE ;R times 5
ADD HL,HL ;R times 10
ADD HL,HL ;R times 20
ADD HL,HL ;R times 40
ADD HL,HL ;R times 80
POP DE ;get other value
ADD HL,DE ;HL=&C000 + &800*(row MOD 8) +
    (row DIV 8)*80 + column
EX DE,HL ;screen address to DE

POP HL ;get pointer to compressed data
LD A,(HL) ;get byte
LD (DE),A ;send to screen
POP DE ;get column, row
INC D ;next column
LD A,D
CP 80 ;reached end of row yet?
JR NZ,ex4 ;skip if not
LD D,0 ;else set column zero
INC E ;and increment row

.ex4
BIT 7,C ;get type of output sequence
JR NZ,ex5 ;outputting same byte so don't increment HL
INC HL ;else outputting a sequence of different bytes,
   so point to next one

.ex5
DJNZ ex3 ;output B bytes
BIT 7,C
JR Z,ex2 ;data pointer has been incremented properly
   for 'different' list
INC HL ;but need to step over 'same' data byte, then
JR ex2 ;loop back for next counter value
```

Listing II

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These days fantasy is very much in fashion, spearheaded by the multi-player action of Gauntlet. John Baker investigates various Amstrad versions

You won't get many to admit it, but fashions and fads seem to play an increasingly large part in the production of computer games. The summer of '86 was Karate, then came Commando-style shoot-em-ups.

But the autumn of '87 can now be officially declared the era of the Gauntlet clone. *(Editors tip for the future: Nemisis and Salamander space-based shoot-em-ups)*.

Gauntlet? Just in case you've had your head in a bucket for the last year or so, perhaps the word needs some short explanation.

Gauntlet (the coin-op) was an Atari game that hit the arcades just over a year ago – and it had the punters queueing up in the streets for the privilege of putting the hard earned dosh in the slots.

The reason for this stampede? Great fantasy storyline, fabby hi-res graphics, bags of sampled sound – but most of all the multi-player action. Up to four players at a time could battle away through the mazes chock full of monsters and treasure.

Everybody loved it – enter the home computer software producers.

Since then, five different Gauntlet-style games have been released, most recently the official licenced version from US Gold. Which begs the questions: How does it compare to its illustrious forefather and do the imitators offer anything extra?

Gauntlet – the official one

One of the advantages of a licence is that your basic system design and graphics have already been designed – and praise should go to Tony Porter, Bill Allen and Kevin Bulmer of Gremlin Graphics (sub-contracted to do the conversion) for reproducing both on the Arnold in a very workmanlike fashion.

The scenario is the same, although due to hardware limitations (you try crowding four people around a keyboard) the action is limited to one or two players.

At the start you choose the one or two player option (with two player, one person uses keyboard controls) and then select one of the four characters you want to play.

Feeling particularly macho? You could try Thor the Warrior. Spritely? Then Questor the Elf is for you. Magical? Merlin's your man. And if there's a lady in the house, Thyra the Valkyrie is a natural choice.

Each one has its particular advantages and disadvantages. Thor can throw a mean axe and has pretty good armour, but isn't too good when it comes to using magic potions. Merlin, on the other hand, as you would expect uses magic well but hasn't got any armour.

After this, press fire and away you go to Level One of the dungeon. Each level is a maze predominantly filled with monsters, but there are other things you'll not want to hack away at.

Keys must be collected for future use – they open magic doors that you'll come across from time to time. Food comes in handy for replenishing your energy (which slowly ticks down from 2000 from the word go – much faster if a monster is putting the boot in).

Best of all are magic potions – the medieval equivalent of smart bombs. For use in emergencies only.

The items you have collected are shown below the main display, along with the number of points you have scored to date and the energy you have left.

There are six different types of monster you'll find yourself up against – Ghosts, Grunts, Demons, Lobbers and Sorcerers, each more deadly than the last. Worst of all is the black coated figure of Death, who can only be disposed of with a potion.

All (except Death) are created by "monster generators", so it's no good killing all the monsters in a section

(either hand-to-hand or much preferably using your missile weapon) unless you destroy the generators too.

The dual aims while wandering through the levels are to kill/maim/collect treasure and so on, and try to find the stairs down to the next level.

Sometimes there will be more than one exit – on Level One there is a short cut down to Level Eight, for instance. And sometimes the maze is so complicated and devious you'll wonder if one exits at all!

Generally, the lower the level the nastier the monsters and the greater the surprises – like poisoned food, traps and transporters. But there are nice surprises too, such as special potions to increase your abilities.

Like the original, there's no doubt that the game is best played multi-player, with the two of you battling it out against the opposition.

The CPC version does lack the flashy effects of the coin-op – only the ST version will come anything close – but the conversion is faithful to the original and does capture its hack-and-slay spirit.

Don't expect to have to strain your brain too much, but if you want the real thing, this is it.



Gauntlet

The Clones

Storm by Mastertronic: The first clone to come on to the market, this budget title has all the elements of Gauntlet – top down view, monster generators, energy levels – but is flip screen rather than continuous scroll.

Generally the graphics and animation are inferior, but if you are into quests (rather than carnage just for the fun of it) then Storm gives you a flimsy excuse with the premise of rescuing a damsel in distress.

One or two players allowed (with similar characteristics), single load, enjoyable enough budget fare lacking the polish of the full-price clones.

Dandy by Electric Dreams: Electric Dreams stole the limelight from US Gold at the PCW show this year (eventually coming to one of those amicable agreements) by licensing the project from which Gauntlet was actually developed.

Thus it has many of the same elements – but the graphics are completely different and to my mind less effective.

Flip screens again, with one or two players (again, both with the same abilities) and multi-load (like Gauntlet itself).

After much playtesting, I decided I preferred Gauntlet, although you might find the graphics more attractive on the telly.

Druid by Firebird: Telecom Soft's entry to the fray – well executed and nicely designed. More a one player game, although a second player can control a Golem when you've learned how to create it.

Druid has slightly more complex gameplay and strategy overall – much more a cerebral arcade adventure than a straightforward bloodbath.

Scrolling screen, single load, it's different enough that you might want to have both this and Gauntlet in your collection.

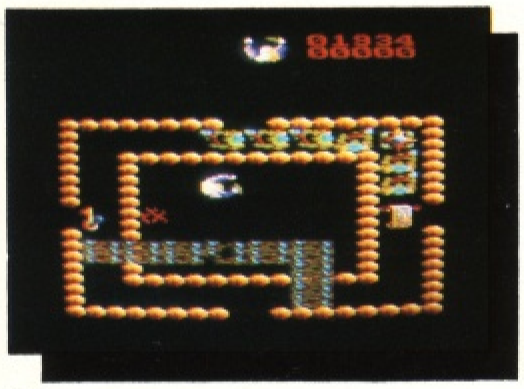
Avenger by Gremlin Graphics: Follow-up to Way of the Tiger in that you control the same persona, although the graphics and gamesplay are completely different. Although visually similar, it draws little from Gauntlet – again, you might want both. Both arcade and brain skills are needed, as you work out which doors to open with the limited supply of keys available.

Certainly not just a martial arts bash – in fact you might find the brain strain a bit too much for you. One player single load.

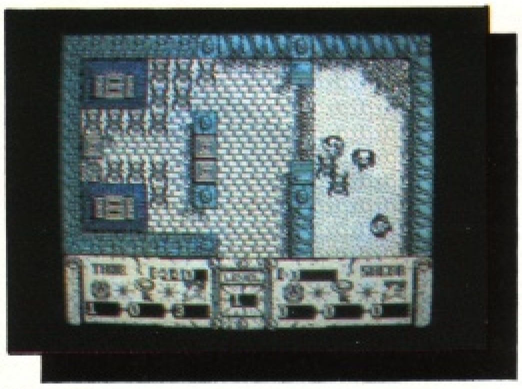
John Baker



Avenger



Storm

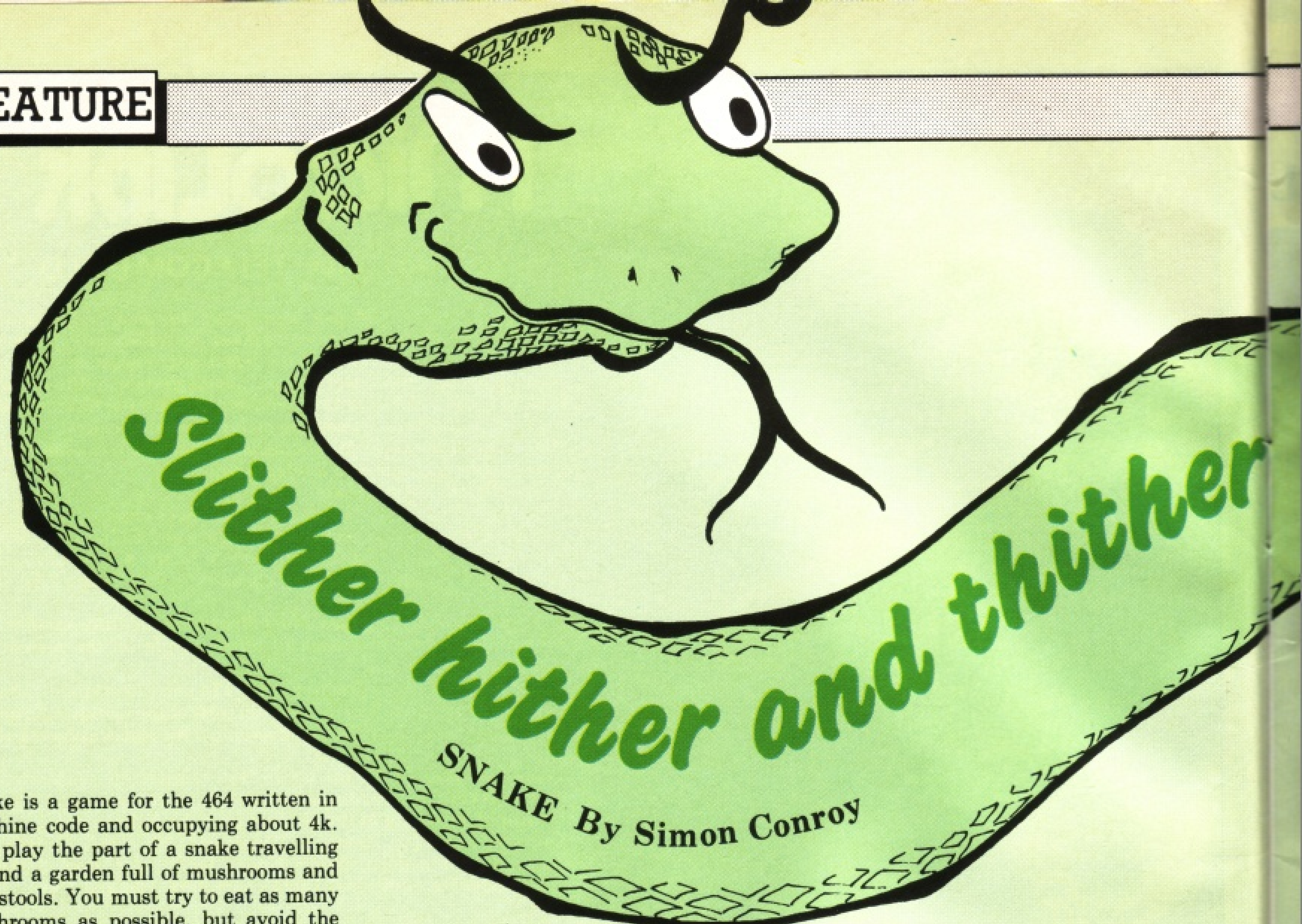


Dandy



Druid

ACU



Slither hither and thither

SNAKE By Simon Conroy

Snake is a game for the 464 written in machine code and occupying about 4k. You play the part of a snake travelling around a garden full of mushrooms and toadstools. You must try to eat as many mushrooms as possible, but avoid the flashing toadstools at all costs as they are poisonous.

The more mushrooms you eat, the longer the snake gets, thus decreasing your manoeuvrability. There is only a certain amount of time for you to eat all the mushrooms on the screen, and if you do this you get a bonus depending on the time left.

You then progress to the next screen where things work faster and you have more toadstools to avoid. You have three lives for each game. There are three skill levels with level 1 being the easiest (slowest) and level three the most difficult (fastest).

The keys to press are Z for left, X for right, semicolon or plus for up, and / or ? for down. Press P to pause the game.

To play Snake, you must type in the Basic listing which pokes the code for the game into memory and SAVEs it for you. Save it straight away without running it. Now run it and if the program informs you of any errors in the data, it will point out the line at which the error occurred. If this happens correct it and resave it.

When you have got the Basic program to run without errors you must have a tape ready to save the code on to.

The program saves it for you automatically, in the form of an auto-run file. Then to run the program you can use the Ctrl and Enter keys.

```
************ SNAKE ************
5 linenumber=100
10 FOR i=30000 TO 34040 STEP 8
15 tot=0
20 READ a$
25 FOR j=0 TO 7
30 a=VAL("&"+MID$(a$,(j*2)+1,2))
35 POKE i+j,a
40 tot=tot+a
45 NEXT
50 READ c
55 IF tot<>c THEN PRINT "Error
   in line " ;linenumber:END
60 linenumber=linenumber+10
65 NEXT
70 SAVE "snake",b,30000,4050,
   30000
100 DATA ED5F325B75ED5F32,972
110 DATA 5C75ED5F325D75ED,1038
120 DATA 5F325E7511F00021,646
130 DATA A474CDABBB11A474,1140
140 DATA 215F75018B00EDB0,798
150 DATA C353760102030424,442
160 DATA 3C7E5A7E7E3C1818,636
170 DATA 3C7E7E5A7E3C2400,624
180 DATA 3CEE7F7FEE3C0000,850
190 DATA 3C77FEFE773C0004,870
200 DATA FF404040FF040400,710
210 DATA 3C7E7E1818000018,384
220 DATA 3C7EE7E77E3C1818,882
230 DATA 3C66C3C3663C183C,798
240 DATA 3C66C3C3663C3C24,810
250 DATA 3C66DBDB663C243C,858
260 DATA 3C66DBDB663C3C3C,882
270 DATA 245AA5A55A243C3C,702
280 DATA 245AE7E75A243C3C,834
290 DATA 3C5AE7E75A3C3C3C,882
300 DATA 3C5AFFFF5A3C3C3C,930
310 DATA 3C7EFFFF7E3C3C3E,1004
320 DATA 01CD0EBC3EA4CD1F,870
```

```
330 DATA 803A4E76CD1F803A,804
340 DATA FB78CD5ABB3A997A,1186
350 DATA CD5ABB3A257BCD1F,936
360 DATA 803AB37BCD1F803A,910
370 DATA 4E7CCD5ABB3A4E76,938
380 DATA CD1F803ACF7CCD5A,1048
390 DATA BB3AD17DCD5DBB3A,1122
400 DATA 4E76CD1F803AF378,981
410 DATA CD5ABB3AB37BCD1F,1078
420 DATA 803A4E7CCD5ABB3A,928
430 DATA FE7DCD5DBB3AB37B,1224
440 DATA CD5ABB3AD07CCD1F,1108
450 DATA 80CD18BBFE2020F9,1111
460 DATA C3E9803E01215D76,863
470 DATA CDBCBC1810010100,623
480 DATA 0300000000000000,3
490 DATA 00000000003E0221,97
500 DATA 7776CDBCBC181001,859
510 DATA 0FFF060000000000,276
520 DATA 000000000000003E,62
530 DATA 03219176CDBCBC18,904
540 DATA 10010FFF01000000,288
```

```
550 DATA 0000000000000000,0
560 DATA 003E0421AB76CDBC,781
570 DATA BC1810010FFF0A00,509
580 DATA 0000000000000000,0
590 DATA 0000003E0121C576,411
600 DATA CDBFBC1810000000,624
610 DATA 0000000000000000,0
620 DATA 00000000003E0221,97
630 DATA DF76CDBFBC181002,967
640 DATA 1E1E011EE2030000,320
650 DATA 000000000000003E,62
660 DATA 0321F976CDBFBC18,1011
670 DATA 100101000F000000,33
680 DATA 0000000000000000,0
```

```
690 DATA 003E04211377CDBF,633
700 DATA BC1810010F320A00,304
710 DATA 0000000000000000,0
720 DATA 0000003E04CD5ABB,548
730 DATA 3E01CD5ABB213B77,756
740 DATA 7EFE00281CCD5ABB,930
750 DATA 2318F5436F6C6F75,818
760 DATA 72206D6F6E69746F,808
770 DATA 722028592F4E293F,504
780 DATA 003E2BCD1EBBC268,825
790 DATA 773E2ECD1EBBCA51,932
800 DATA 7721287BCB861805,681
810 DATA 21287BCBC63E0001,660
820 DATA 0909CD32BC3E0101,525
830 DATA 0000CD32BC3E0201,508
840 DATA 0303CD32BC3E0301,515
850 DATA 0D03CD32BC3E01CD,727
```

```
860 DATA 0EBC3E01CD90BB3E,863
870 DATA 00CD96BB21D1777E,1029
880 DATA FE00CADA78473E1F,958
890 DATA CD5ABB78CD5ABB23,1119
900 DATA 7ECD5ABB237ECD5A,1064
910 DATA BB23E53E01CDB27F,1024
920 DATA CDC57718092188813,742
930 DATA 2B7CB520FBC9E118,1081
940 DATA CE0903F30803F607,725
950 DATA 03F60603F60503F6,758
960 DATA 0504F60505F60506,522
970 DATA F60606F60706F608,771
980 DATA 06F60906F60907F6,775
990 DATA 0908F60909F60809,544
1000 DATA F60709F60609F605,774
1010 DATA 09F20B09F10B08F6,777
1020 DATA 0B07F60B06F60B05,543
1030 DATA F60B04F60B03F60C,779
1040 DATA 05F60D06F60E07F6,783
```

```
1050 DATA 0F09F60F08F60F07,561
1060 DATA F60F06F60F05F60F,794
1070 DATA 04F60F03F01109F1,775
1080 DATA 1108F61107F61106,564
1090 DATA F61105F61206F611,801
1100 DATA 04F61103F61306F6,787
1110 DATA 1203F61303F61403,558
1120 DATA F61406F61503F615,809
1130 DATA 04F61505F61506F6,795
1140 DATA 1507F61508F61509,579
1150 DATA F11709F11708F617,814
1160 DATA 07F61706F61705F6,802
1170 DATA 1704F61703F01806,569
1180 DATA F61905F61907F61A,826
1190 DATA 04F61A08F61B03F3,803
1200 DATA 1B09F32109F32009,605
1210 DATA F61F09F61E09F61D,846
1220 DATA 09F61D08F61D07F6,820
1230 DATA 1D06F61D05F61D04,594
1240 DATA F61D03F61E03F61F,834
1250 DATA 03F62003F62103F3,809
1260 DATA 1E06F61F06F62006,603
1270 DATA F3003E02CD90BB21,876
1280 DATA 0B10CD75BB060821,583
1290 DATA F3787ECD5ABB2310,1022
1300 DATA F91809436F6E7472,800
1310 DATA 6F6C7353210D11CD,685
1320 DATA 75BB06052150797E,675
1330 DATA CD5ABB2310F92111,832
1340 DATA 11CD75BB06072155,657
1350 DATA 797ECD5ABB2310F9,1029
1360 DATA 210F08CD75BB061A,597
1370 DATA 215C797ECD5ABB23,889
1380 DATA 10F93E02CD96BB3E,933
1390 DATA 03CD90BB21180ACD,811
1400 DATA 75BB06172176797E,731
1410 DATA CD5ABB2310F9183D,867
1420 DATA 302D2D55703F2D2D,499
1430 DATA 446F776E5A2D2D6C,696
1440 DATA 6566742020202020,479
```

```
1450 DATA 202020202020582D,325
1460 DATA 2D52696768742050,667
1470 DATA 7265737320616E79,805
1480 DATA 206B657920746F20,652
1490 DATA 706C617920CD09BB,871
1500 DATA 38FBCD06BBC3F17A,1263
1510 DATA 401F581B70178813,500
1520 DATA A00FB80BD007E803,820
1530 DATA 0080000070000060,336
1540 DATA 0000500000400000,144
1550 DATA 3000002000001000,96
1560 DATA 53696D6F6E20436F,728
1570 DATA 6E726F7920202053,635
1580 DATA 696D6F6E20436F6E,755
1590 DATA 726F792020205369,630
1600 DATA 6D6F6E20436F6E72,764
1610 DATA 6F7920202053696D,625
1620 DATA 6F6E20436F6E726F,766
1630 DATA 792020205369606F,625
1640 DATA 6E20436F6E726F79,776
1650 DATA 202020536960 6F6E,614
1660 DATA 20436F6E726F7920,698
1670 DATA 202053696D6F6E20,614
1680 DATA 436F6E726F792020,698
1690 DATA 2053696D6F6E2043,649
1700 DATA 6F6E726F79202020,663
1710 DATA 210A0ACD3EBC3E01,571
1720 DATA 32567A2100002257,412
1730 DATA 7A22597A3E00325B,570
1740 DATA 7ACD458418440000,620
1750 DATA 000000000000C5E5,426
1760 DATA 0608215E75215E75,502
1770 DATA CB7E281228 7EEE76,912
1780 DATA 772B7EEEB5772B7E,995
1790 DATA EE53773718013F21,616
1800 DATA 5B75CB1623CB1623,728
1810 DATA CB1623CB1610D37E,838
1820 DATA E1C1CB3FCB3FCB3F,1216
1830 DATA C969065021287 3CD,785
1840 DATA 5E7AFE1030F9C603,984
1850 DATA 7723CD5E7AFE1430,897
1860 DATA F9C603FE0D20013C,810
1870 DATA 773E5090CAEC7AE5,1194
1880 DATA C55E2B5621287BCB,819
1890 DATA 9E212873477EBA23,764
1900 DATA 200B7EBB2007E521,657
1910 DATA 287BCBDEE12310ED,1101
1920 DATA 21287BCB5EC1E128,951
1930 DATA 032B2B042310B0C9,521
1940 DATA 003E0332F07ACD38,738
1950 DATA 7ACD267BCD497D21,924
1960 DATA 287B7EE60628F5CB,1013
1970 DATA 572805CD018018E9,723
1980 DATA CDA48021F07A7E3D,1079
1990 DATA 77FE0020DCCD9F82,1119
2000 DATA CDE98018CC6D1801,928
2010 DATA 0021287BCB8ECB96,894
2020 DATA CB46CA6F7B3E0001,772
2030 DATA 0909CD32BC3E0101,525
2040 DATA 0000CD32BC3E0201,508
2050 DATA 0F0FCD32BC3E0301,539
2060 DATA 1001CD32BC3E0401,527
2070 DATA 0D0DCD32BC3E0501,537
2080 DATA 0303CD32BC3E0601,518
2090 DATA 1A1ACD32BC18383E,637
2100 DATA 00011111CD32BC3E,540
2110 DATA 01010000CD32BC3E,507
2120 DATA 02010808CD32BC3E,524
2130 DATA 03011319CD32BC3E,553
2140 DATA 04010808CD32BC3E,526
2150 DATA 05011212CD32BC3E,547
2160 DATA 06010606CD32BC3E,524
2170 DATA 04CD5ABB3E00CD5A,843
2180 DATA BB18026F003E0332,439
2190 DATA B47B180100CD09BB,729
2200 DATA 38FB3E0432BC7B47,805
2210 DATA 216F743E0B90360D,544
2220 DATA 2B772B10F63E01CD,735
2230 DATA 90BB3E00CD96BB21,968
2240 DATA 687421687446234E,656
2250 DATA 6069CD75BB3AB47B,1071
2260 DATA C6F0CD5ABB3ABC7B,1289
2270 DATA 4721687458CB2316,672
2280 DATA 00192B2B56235E62,424
2290 DATA 6BCD75BB3A567AC6,1080
2300 DATA F5CD5ABB0578FE01,1107
2310 DATA 20DF3E05CD96BB3E,926
2320 DATA 01CD90BB3E1ECD5A,924
2330 DATA BB06143EF4CD5ABB,1001
2340 DATA 10F906176826 01CD,642
2350 DATA 75BB3EF4CD5ABB68,1196
2360 DATA 2614CD75BB3EF4CD,1078
2370 DATA 5ABB10E818036E00,662
2380 DATA 0021F000224F7C3E,572
2390 DATA 05CD96BB211801CD,810
2400 DATA 75BB06143E20CD5A,719
2410 DATA BB10FB3E06CD90BB,1058
2420 DATA CDBABB3E04CDDEBB,1258
2430 DATA 11A000211800CDC0,631
2440 DATA BB11800221180 0CD,596
2450 DATA F6BB211801CD75BB,1000
2460 DATA 3E54CD5ABB3E49CD,968
2470 DATA 5ABB3E4DCD5ABB3E,960
2480 DATA 45CD5ABB3E3ACD5A,966
2490 DATA BB3E01CD90BB3E04,852
2500 DATA CD96BB211901CD75,923
2510 DATA BB181653434F5245,613
2520 DATA 3A20202020202020,282
2530 DATA 202020202020204A,298
2540 DATA 7921BB7C06147ECD,822
2550 DATA 5ABB2310F9CD637F,1008
2560 DATA 21190FCD75BB3AF0,880
2570 DATA 7A473EF3CD5ABB10,996
2580 DATA F921567A7ECB27CB,1061
2590 DATA 2786C614CB274F06,718
2600 DATA 00C521287311C873,717
2610 DATA EDB03E04CD90BB3E,1077
2620 DATA 00CD96BBC1CB3941,1060
2630 DATA 21C8733E1FCD5ABB,923
2640 DATA 7ECD5ABB237ECD5A,1064
2650 DATA BB3EF5CD5ABB2379,1132
2660 DATA 90FE13280410E418,729
2670 DATA 093E03E5CD90BBE1,1064
2680 DATA 18F32160EACDC877,1154
2690 DATA C9CD09BB304CFE5A,1070
2700 DATA 282EFE7A282AFE58,886
2710 DATA 282DFE782829FE3B,853
2720 DATA 282CFE2B2828FE2F,762
2730 DATA 282BFE3F2827FE70,845
2740 DATA 2806FE5028021822,480
2750 DATA CD06BBCD0CBB18C9,1027
2760 DATA 3E0132B47B18133E,521
2770 DATA 0332B47B180C3E02,456
2780 DATA 32B47B18053E0032,494
2790 DATA B47B3ABC7B4F0600,757
2800 DATA 216874090923417E,497
2810 DATA 2323772B2B2B7E23,479
2820 DATA 23772B2B2B0578FE,662
2830 DATA FF20EC3AB47BFE00,1138
2840 DATA 20132169747EFE17,708
2850 DATA 200821287BCBCE18,669
2860 DATA 412E34183DFE0120,535
2870 DATA 122168747EFE0220,685
2880 DATA 0721287BCBCE182A,678
2890 DATA 351827FE02201321,456
2900 DATA 69747EFE02200821,676
2910 DATA 287BCBCE18147235,783
2920 DATA 18102168747EFE13,692
2930 DATA 200721287BCBCE18,668
2940 DATA 013421687456235E,521
2950 DATA 21567A7ECB27CB27,851
2960 DATA 86C6140E014721C8,671
2970 DATA 737EBA23205E7EBB,901
2980 DATA 205A3E00772B7779,586
2990 DATA FE15380721287BCB,737
3000 DATA CE184D2A577A2A57,687
3010 DATA 7A010A000922577A,385
3020 DATA 3A597AC60A273259,655
3030 DATA 7A30143A5A7AC601,659
3040 DATA 27325A7A30093A5B,507
3050 DATA 7AC601273 25B7ACD,828
3060 DATA 637F3E02CDB27F21,833
3070 DATA 287BCBE621BC7B34,992
3080 DATA 7EFE18200521287B,637
3090 DATA CBD61804230C1099,661
3100 DATA 21287BCB6620053E,600
3110 DATA 01CDB27F21287BCB,910
3120 DATA A621687456235E3A,692
3130 DATA BC7B47237E23BA20,796
3140 DATA 007EBB200721287B,559
3150 DATA CBCE18060578FE01,819
3160 DATA 20E93E01CD90BB3E,926
3170 DATA 00CD96BB3E01CDB2,988
3180 DATA 7F21687456235E62,693
3190 DATA 6BCD75BB3AB47BFE,1231
3200 DATA 0020043EF11812FE,635
3210 DATA 0120043EF2180AFE,629
3220 DATA 0220043EF018023E,428
3230 DATA F3CD5ABB2168743A,1036
3240 DATA BC7B5F160000CB23,666
3250 DATA 1956235E626BCD75,767
3260 DATA BB3E20CD5ABB2168,900
3270 DATA 74232356235E626B,606
3280 DATA CD75BB3A567AC6F5,1218
3290 DATA CD5ABB18193E05CD,803
3300 DATA DEBB2A4F7CCB25CB,1097
3310 DATA 1411A00019545D21,432
3320 DATA 1800CDEABBC92A4F,972
3330 DATA 7C2B224F7C7CB520,741
3340 DATA 0521287BCBCE2A5C,744
3350 DATA 7A232B7CB520FBCD,993
3360 DATA 2D7FC9211907CD75,760
3370 DATA BB3E01CD90BB3E04,852
3380 DATA CD96BB3A5B7AE60F,1058
3390 DATA C630CD5ABB3A5A7A,998
3400 DATA CB3FCB3FCB3FCB3F,1064
3410 DATA C630CD5ABB3A5A7A,998
3420 DATA E60FC630CD5ABB3A,1031
3430 DATA 597ACB3FCB3FCB3F,1009
3440 DATA CB3FC630CD5ABB3A,1052
3450 DATA 597AE60FC630CD5A,997
3460 DATA BBC9FE01200821DD,937
3470 DATA 7FCDAABC181EFE02,1000
3480 DATA 200821E67FCDAABC,993
3490 DATA 1812FE03200821EF,611
3500 DATA 7FCDAABC180621F8,1001
3510 DATA 7FCDAABCC9810101,1022
3520 DATA F401000F03008202,395
3530 DATA 02E803000F000081,381
3540 DATA 030300 00010F0200,24
3550 DATA 810404E803000F00,387
3560 DATA 003E01CD90BB3E00,661
3570 DATA CD96BB211407CD75,924
3580 DATA BB2122807EFE0028,802
3590 DATA 10CD5ABB2318F5C3,997
3600 DATA 5ABB424F4E555321,701
3610 DATA 00214F7C4678FE00,680
3620 DATA 283C3D77E5C52A57,835
3630 DATA 7A0105000922577A,380
3640 DATA 3A597AC605273259,650
3650 DATA 7A30143A5A7AC601,659
3660 DATA 27325A7A30093A5B,507
3670 DATA 7AC60127325B7ACD,828
3680 DATA 637FCD2D7F3E03CD,873
3690 DATA B27FC1E110BF3A56,1074
3700 DATA 7A3CFE0B200C3E01,554
3710 DATA 215D7ACB3E2BCB1E,789
3720 DATA 181E2A5C7ACB3CCB,776
3730 DATA 1DCB3CCB1DCB3CCB,990
3740 DATA 1DCB3CCB1D444D3F,732
3750 DATA 2A5C7AED42225C7A,807
3760 DATA 32567AC93E04CDB2,908
3770 DATA 7F3AF07AFE012028,874
3780 DATA 210E06CD75BB3E01,625
3790 DATA CD90BB3E00CD96BB,1140
3800 DATA 21CE807EFE002810,803
3810 DATA CD5ABB2318F54741,922
3820 DATA 4D45204F56455200,494
3830 DATA 060AC506FFC506FF,932
3840 DATA 10FEC110F8C110F2,1178
3850 DATA C921287BCB462822,744
3860 DATA 3E00010303CD32BC,512
3870 DATA 3E01010D0DCD32BC,533
3880 DATA 3E02010D01CD32BC,522
3890 DATA 3E03010000CD32BC,509
3900 DATA 18203E00010505CD,334
3910 DATA 32BC3E01010F0FCD,537
3920 DATA 32BC3E0201070CCD,527
3930 DATA 32BC3E03010707CD,523
3940 DATA 32BC3E03CD96BB3E,907
3950 DATA 01CD0EBC3E14CD5A,785
3960 DATA BB3E01CD90BB3E00,848
3970 DATA CD96BB21020DCD75,912
3980 DATA BB060E3E20CD5ABB,783
3990 DATA 10FB21030DCD75BB,825
4000 DATA 216E817EFE002815,713
4010 DATA CD5ABB2318F52020,850
4020 DATA 202020534E414B45,466
4030 DATA 202020200021040D,178
4040 DATA CD75BB060E3E20CD,828
4050 DATA 5ABB10FB21050DCD,800
4060 DATA 75BB21A0817EFE00,1006
4070 DATA 2815CD5ABB2318F5,847
4080 DATA 2048414C4C204F46,502
4090 DATA 2046414D45200021,378
4100 DATA 060DCD75BB060E3E,610
4110 DATA 20CD5ABB10FB3E03,846
4120 DATA CD96BB0601788 0C6,995
4130 DATA 066F2602CD75BB78,786
4140 DATA C630CD5ABB3E20CD,1027
4150 DATA 5ABB3E2DCD5ABBCD,1071
4160 DATA 5ABBCD5ABBCD5ABB,1241
4170 DATA 3E20CD5ABB788080,952
4180 DATA 5F160021A579197E,587
4190 DATA 32597A237E325A7A,684
4200 DATA 237E325B7AC5CD73,941
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4220 DATA 133E4FCD1EBB280C,634
4230 DATA 79E6A02807FEA020,1004
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4250 DATA 6F260FCD75BBC506,876
4260 DATA 093E2ECD5ABB10FB,866
4270 DATA 3E20CD5ABBC178CB,1092
4280 DATA 27CB27CB27CB2790,909
4290 DATA 5F160021B17919C5,670
4300 DATA 060F7ECD5ABB2310,680
4310 DATA F9C10478FE09C2C5,1220
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4330 DATA CD90BB21180ACD75,925
4340 DATA BB06152181827EFE,886
4350 DATA 00281CCD5ABB2318,609
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4410 DATA 795E235623E5626B,805
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4520 DATA E1C5ED5B577A7323,1109
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4600 DATA CD0EBC21050FCD75,782
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4760 DATA 72657320746F6461,786
4770 DATA 79506C6561736520,755
4780 DATA 656E74657220796F,806
4790 DATA 7572206E616D6521,713
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4810 DATA 2ECD5ABB10FB2116,850
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4840 DATA 772310FCE10610CD,874
4850 DATA 06BBFE1F3833FE7F,966
4860 DATA 281030F34F78FE01,801
4870 DATA 7928ECCD5ABB7723,1033
4880 DATA 10E578FE1028E0FE,1153
4890 DATA 0128033E20772B04,304
4900 DATA 3E08CD5ABB3E2ECD,865
4910 DATA 5ABB3E08CD5ABB18,853
4920 DATA C6CD7EBBC93E0001,980
4930 DATA 0000CD32BC3E0101,507
4940 DATA 0D0DCD32BC3E00CD,736
4950 DATA 96BB3E01CD90BB3E,998
4960 DATA 01CD0EBC210808CD,662
4970 DATA 75BB218A8406187E,763
4980 DATA CD5ABB2310F9210B,826
4990 DATA 0ACD75BB21A28406,852
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5020 DATA 6C6576656C3F2020,663
5030 DATA 28312C32206F7220,472
5040 DATA 3329313D45617379,604
5050 DATA 202020333D446966,483
5060 DATA 666963756C743E40,773
5070 DATA CD1EBB2807213075,667
5080 DATA 225C7AC93E41CD1E,811
5090 DATA BB280721204E225C,503
5100 DATA 7AC93E39CD1EBB28,904
5110 DATA DD211027225C7AC9,758
5120 DATA 80CD18BBFE2020F9,1111
5130 DATA C3E9803E01215D76,863
5140 DATA CDBCBC1810010100,623
5150 DATA 0300000000000000,3
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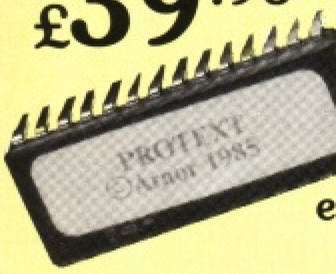
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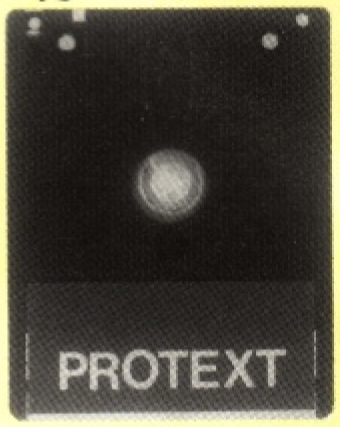
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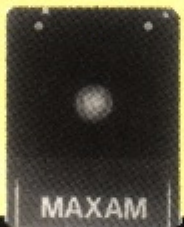
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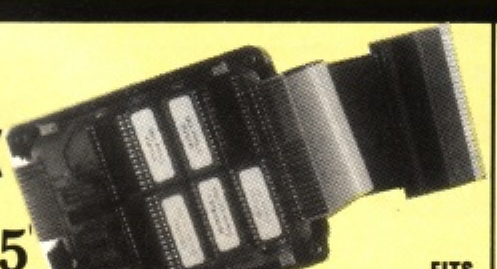
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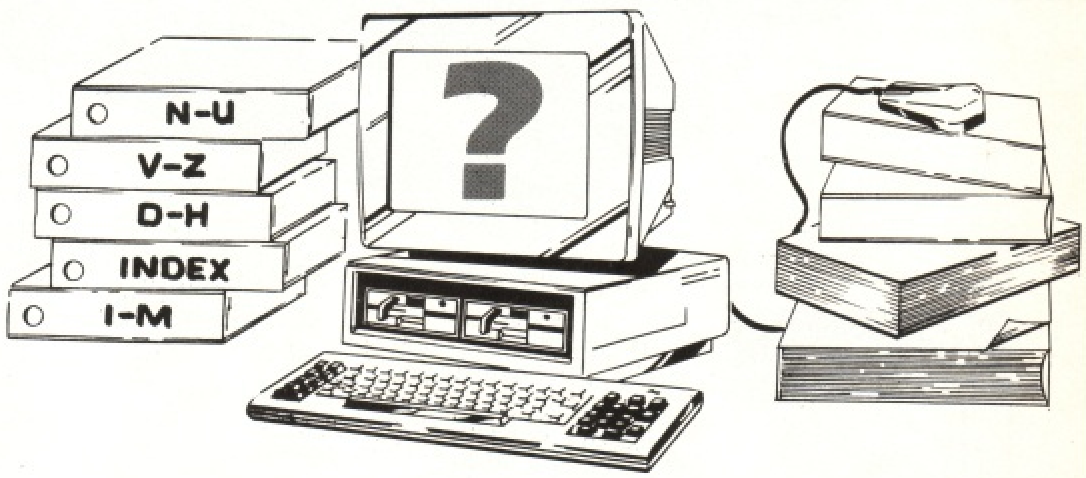
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DIRECTORY ENQUIRIES



In the last of his series of articles on understanding MSdos Robert Schifreen explains how to use your directory

ONE of the best things about Gem is the way it helps you organise your files. You can create filing cabinets and folders for file storage, all represented on the screen by icons.

For example, you could have two filing cabinets on a disc, called PROGRAMS and LETTERS. Into these, naturally enough, you could file all the programs and letters you write.

If you have lots of files on a disc, you could extend the idea further by splitting the PROGRAMS filing cabinet into a GAMES folder and an OTHERS folder to keep the categories separate.

Putting groups of files into their own filing cabinets and folders helps you keep track of them. When their contents are displayed on-screen, only the files that you are interested in will actually appear. If you ask for a list of what's in the GAMES filing cabinet, you won't have letters and other odd files in the way.

Using cabinets and folders to keep a floppy disc in order is useful but not essential, as you can only have just over 100 files on a floppy disc anyway.

If you have a hard disc though, where you could have more than 1,000 files, keeping things organised is essential. Otherwise your Gem screen will contain hundreds of different icons and it will become very hard to find a specific file.

If you don't use Gem, or prefer to use MSdos (or Dos Plus even), there's no reason why you can't have your files organised in exactly the same way as Gem provides.

For when Gem creates filing cabinets and folders to separate groups of files, it's not doing anything special — it's just using something that normal MSdos can already do. Gem simply makes the screen look pretty by filling it with little pictures.

With MSdos, the equivalent of a Gem filing cabinet is called a directory. Here you can put files, more directories or a mixture of the two.

A directory inside a directory – the Gem equivalent of a folder – is known in MSdos as a subdirectory. The whole topic of MSdos directories is quite enough to play around with, so I'll leave subdirectories for another time.

Branching out

You can have any number of directories and subdirectories on a disc – as long as you have at least one.

This is known as the root directory and any other directories on a disc are placed inside it. Every disc has a root directory, even if you don't explicitly create it.

To get started, you'll need an MSdos disc that has a few files on it and at least 20k of space. Put the disc in drive A and type A: to make sure MSdos knows which drive you're working with.

I'm assuming that the disc you have in drive A has no extra directories on it. If it has, you already know how you put them there so it's not worth reading on anyway!

Type DIR to get a directory of the disc. Before MSdos displays the list of files on the screen, you'll see a line like:

Directory of A:

The A: tells you what drive you are looking at, while the \ symbol (backslash) shows the name of the directory you are currently in. Being in a directory is like being inside a certain filing cabinet or folder in Gem.

Naming names

Normally, directories have names. The only one that you can't name is the root directory, which is always represented by a backslash.

OK, so the disc only has one directory on it. Let's create another and call it TEST.

When you create a new directory on a disc, its name can be up to eight characters, just like a file's name.

You can even give it an extension but that's not a good idea as some software doesn't like extensions on directories (PC-Write for example).

To create a new directory, type:

MKDIR TEST

The MKDIR command makes a new directory. After a second or so, the MSdos prompt will return and the directory will have been created. Incidentally, you can abbreviate MKDIR to MD.

Now, type DIR and see what happens.

The directory listing is the same as before! If you look at the line which tells you which directory is being listed out, you'll see it still says A:\.

Just because we have a new directory called TEST, it doesn't mean that MSdos looks at it. That's the beauty of directories; they are treated almost like

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separate disc drives.

Just as you have to log into a disc drive before you use it, you have to tell MSdos which directory you will be working in, and from which you want MSdos to get your programs and files.

We are currently in the root directory: To look inside TEST, we need to be in the TEST directory. (With MSdos, the directory that you are in is called your current directory).

To make TEST our current directory, type:

CHDIR TEST.

CHDIR changes the current directory. Now, type DIR and see what you get. You'll see something like this:

Volume in drive A: has no label
Directory of A:\TEST
. <DIR> 11-30-86 2:34p
.. <DIR> 11-30-86 2:34p
2 file(s) 192700 bytes free

Although you haven't put any files into the TEST directory, MSdos has created two for you, called "."and "..".

These are special files, which are actually directories themselves, hence the <DIR> part. I won't explain these special entries now, except to say that they exist. Any MSdos book will explain them further.

Apart from these two entries there are no files in our current directory, but there are a number of ways to get a file in.

For example, when a word processor saves your text on disc it usually puts the file in the current directory. Alternatively, you could copy some files from the root directory into your new one.

To do this, use the CHDIR command to change back into the root directory by typing CHDIR \. (Note the special name for the root directory).

Type DIR and select a file. Let's suppose it's called PLAYFILE.DOC. To copy this file from the root into the TEST directory, type:

COPY \PLAYFILE.DOC
\TEST\PLAYFILE.DOC

To see if the file got copied, change back into the TEST directory.

How separate is a directory?

MSdos treats directories almost like separate drives. If you are in the root directory and type DEL *.*, for example, only the files in that particular directory will be deleted.

MSdos won't look through the other directories for files to delete. If you don't believe me then try it, but use an unwanted disc just in case you get it wrong.

In a short article it's impossible to explain fully the use of directories. The idea is such a fundamental part of MSdos that it would take many pages to cover everything.

If you want to know more, read the manual that came with your PC or invest in another MSdos book. There's a good one by Van Wolverton, published by Microsoft Press, called Running MSdos.

Make sure you get the new edition, which covers MSdos right up to version 3.2.

Meanwhile, I'll leave you with a summary of those MSdos commands that deal with directories – read through the sections in the Amstrad PC 1512 manual for more information.

It's a good idea to experiment with the computer as you read, but make yourself a test disc to use – not one that contains your only copy of a file.

Incidentally, PATH, MKDIR,

CHDIR and RMDIR are all commands built into MSdos. You won't find programs with those names on your MSdos disc. Equally, the commands will always work, whatever disc you happen to have in a drive.

Creating a directory

MKDIR (or MD) makes a new directory. The new directory is put inside the current one. To make the new directory inside the root directory, put a backslash character before the new name.

For example:

MD \TEST2

creates a new directory called TEST2, inside the root directory.

If the current directory is TEST and you typed:

MD TEST2

then TEST2 will be inside TEST and not inside the root directory.

See the PC 1512 manual or any MSdos book for more about having directories within directories. You'll find information under PATH or PATHNAME.

Changing the current directory

The CHDIR or CD command changes the current directory. For example, to make GAMES the current directory, type:

CD \GAMES

Most MSdos commands that deal with files will only look at the current directory and not the whole disc. There is a way to tell MSdos to look through a list of directories if it can't find what it's looking for in the current one. For details, see the PATH command.

Removing a directory

The command RMDIR or RD removes a directory. However, you can't remove a directory unless it contains no files apart from the "." and ".." entries.

It can't contain any directories, either. Gem is not quite so restricting: You can delete a directory (or folder as Gem would have it) by clicking on the icon and pressing Alt+d.

Typing RD \TEST2

would remove the directory TEST2. However, if there were files in the directory it would not be removed and an error message would be displayed.

To delete all the files in a directory, change to that directory with the CD command then use the DEL command.

You can't remove the current directory, or MSdos wouldn't know where it was when the directory went. It's best to be in the root directory – which can't be removed – when you use the RD command.

Running programs

When you type the name of a program, MSdos assumes that it will be in the current directory. For example, if you type RPED, MSdos will assume that the file RPED.COM (which is the RPED program) will be in the current directory.

If it isn't, MSdos won't be able to find the program and you'll get a "Bad command or file name" error message.

To get round this you can type the directory name before the name of the program.

For example, suppose RPED is in the \MSDOS directory, but the current directory is \LETTERS. If you were to type RPED you would get an error message. Typing \MSDOS\RPED at the prompt would work though, and the RPED editor would be loaded correctly.

Locating files

There's another way of telling MSdos where to find files. The PATH command allows you to tell MSdos the name of a directory which it should look in if it can't find a program in the current directory.

For example, if you type the command:

PATH \MSDOS

if the system is unable to find a file in the current directory (whatever that happens to be at the time) then before giving up and producing an error message, the \MSDOS directory will be scanned. If the file is found there, it will be loaded automatically.

This only works with programs that you start by typing their name at the MSdos prompt.

To see what directory you have specified in the PATH command, type PATH at the prompt. To remove the PATH setting, type PATH ;.

Copying whole directories

MSdos version 3.2 (the version used on the PC 1512) has a new command called XCOPY which allows you to copy a whole directory from one disc to another. If the directory you copy does not exist on the new disc, it will be created.

What's more, if the directory you are copying has more directories inside it you can ask for these to be copied too, automatically.

Naturally, when XCOPY copies a directory it copies every file in it. XCOPY is fully explained in the PC1512 book 1.

If you want more information on XCOPY, and you intend to buy a book on MSdos, make sure the one you buy covers MSdos version 3.2.

Listing directories

The TREE command gives you a list of all the directories on a disc and can also list out the files in each one. To get a list of the directories, type:

TREE

at the MSdos prompt. If you type:

TREE /F

then, as well as the name of each directory, you get the list of files that it contains.

The SUBST command

This allows you to substitute a directory name for a disc drive name. For example, suppose you have a directory called \LETTERS. Typing:

SUBST F: \LETTERS

creates a new "disc drive" called drive F, which is really the directory called \LETTERS.

Once you have done this, you could change to drive F by typing F: and then do a DIR command. You would see the contents of the \LETTERS directory.

There are two uses for this command. Firstly, typing F: is quicker than typing \LETTERS. For example, you could type COPY INVOICE.DOC F: and the file INVOICE.DOC would be copied to the \LETTERS directory.

Secondly, some programs, such as WordStar, do not understand MSdos directories and only work with files in the current directory. (This refers to the original WordStar as found on the IBM PC and not WordStar 1512, which was specially adapted for the Amstrad.)

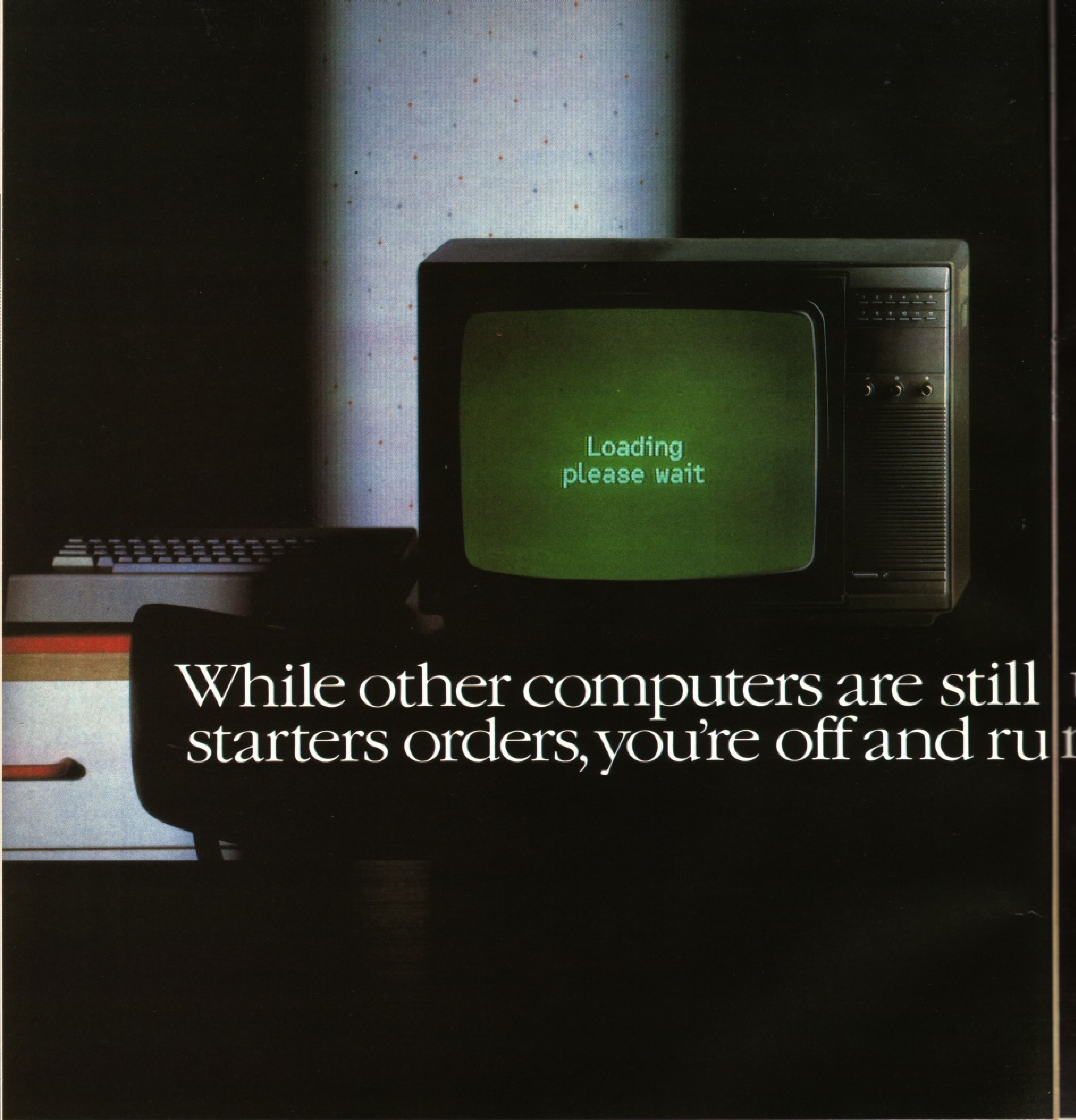
WordStar does have some limitations as regards directories. But to get round this, you could set up a new drive, drive G say, that was really the \DOCUMENT directory.

Then, when you told WordStar to load and save a file from drive G (which it will do quite happily), it will really use the \DOCUMENT directory.

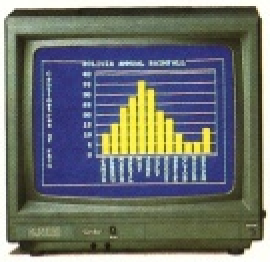
I hope I've given you a taste of just how useful the directory system can be in MSdos. Used properly, directories will be able to keep all your discs in order.

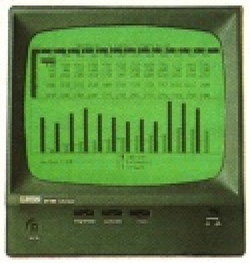
If you have a hard disc, keeping files in groups is essential. If you use floppies, then keeping files separate may mean that you can keep groups of unrelated files on the same disc, but in separate directories – and this will save you money.

ACU



While other computers are still u
starters orders, you're off and ru





The Amstrad 6128 has a built-in advantage over most other home computers.

Its fast loading disc drive unit.

An ordinary cassette driven computer can take as long as 15 minutes to load.

Whereas the 6128's built-in disc drive will load the same programme in seconds.

Which means you don't waste valuable playing time loading.

And it also means you can quickly get into more sophisticated programmes, using more of the 6128's big 128K memory.

Loads more business programmes

There are hundreds of games to play on the 6128, but it also has its serious side.

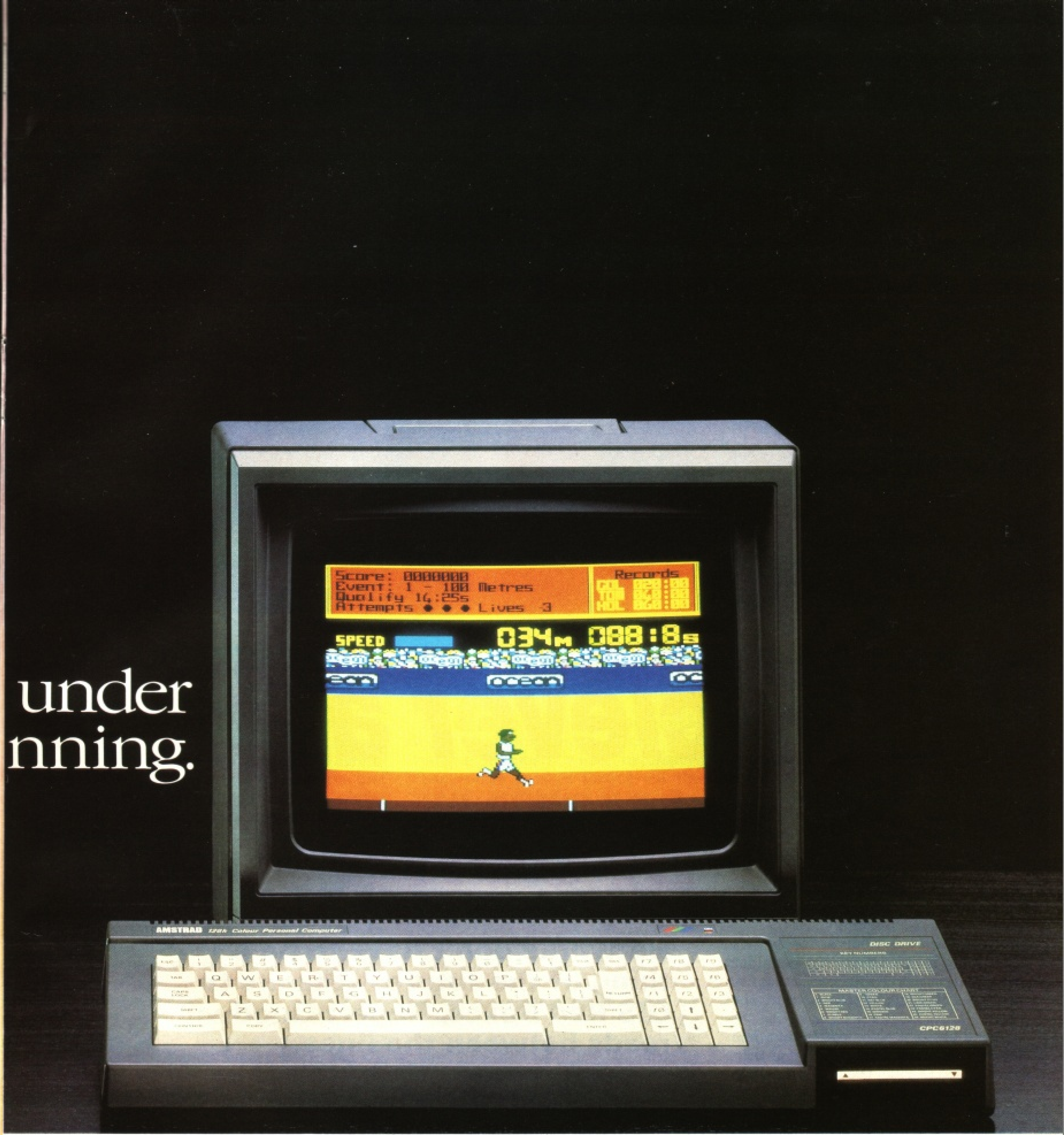
It can handle spreadsheets, database and account management programmes.

It can file and index, produce standard letters and compile reports.

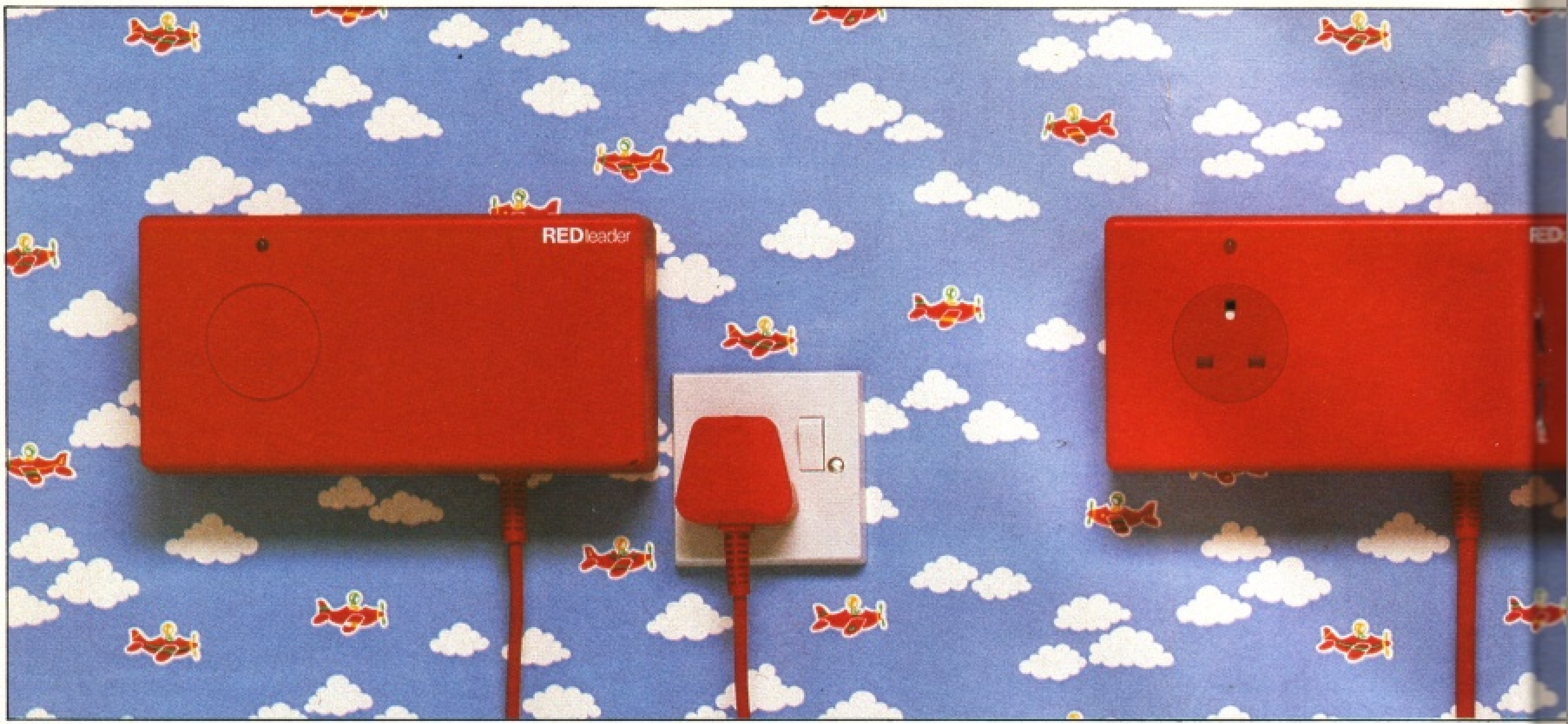
And it will even keep track of rates, mortgage and H.P. payments for you if you want it to.

The 6128 comes complete with green screen or full colour monitor, as well as keyboard with

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CPC6128



Box clever and stay in control

Networks don't have to be a thing of the future – thanks to GIS Red Boxes. Rupert Goodwins reads between the lines.

A longstanding dream of many technically inclined computer buffs has been home control – using a micro to run electrical appliances around the house.

Think about it – the computer could turn on the radio in the morning, then the kettle. During the night it could watch rooms using sensors, and sound alarms if it detected anything untowards. Then it could switch on lights for you when you came home in the evening and prewarm your wife, er, electric blanket for you.

While it's possible to do this by connecting everything up to special wires and leading these to the micro, this is obviously messy, time-consuming and inconvenient. But it's also feasable to send the control signals down the network that every home's got wired-in already – the mains.

Sending signals down the mains isn't a new idea, some electricity boards have been doing it for years to switch street lights. The main application in the home has been 'cordless' intercoms, and baby alarms that allow you to eavesdrop on the neighbours rowing. Ours probably rowed for Cambridge, they were that good.

Now a system is available for a number of micros, including Amstrad CPCs, that can control almost anything via the mains. It's called Red Boxes, and it comes from the people (mostly Chris Curry) who brought you the Acorn System 1, and the Atom. And they had something to do with the BBC Micro as well, before leaving Acorn to form GIS.

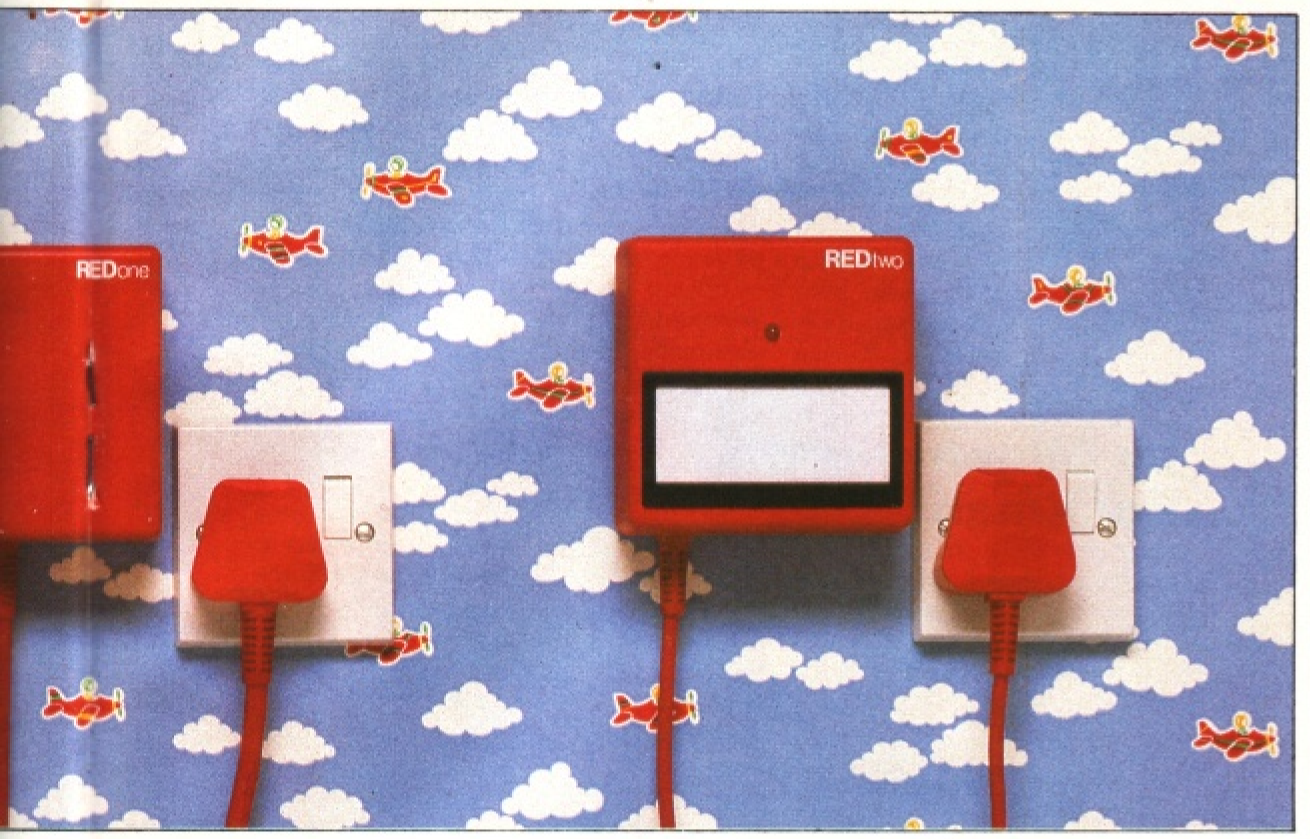
The bitz

Red Boxes, as bought, are, er, red boxes. For your £139 you get three very red boxes with mains leads (red) and plugs (red) hanging off them. They're called Red Leader, Red One and Red Two. The mind biggles.

In reverse order, Red Two is a motion detector. Plug it into a wall socket, and if it subsequentially detects movement in its vicinity it informs on the fact by sending a signal down the mains. Red One has a 13 amp socket (red) which it switches on and off on receipt of the appropriate mains-born message. And then there's Red Leader.

Red Leader has a data socket (black . . . shame) on it, through which it connects to whichever computer one owns. This is where it gets clever. Red Leader is in fact a fully fledged computer, with rom, ram and a language, which controls as many of its lesser brethren as are plugged in on the same mains.

The attached computer acts as a terminal for setting up and programming only. Red Leader couldn't care less what computer it is, and once it has



been programmed the computer can be disconnected completely.

The boxes come with a complete set of wall mountings, which considering their intended semi-permanent installation in a home is a nice touch indeed. Red Two especially needs some careful positioning on a wall to make the best of its potential, and prevent Tibbles from triggering the small tactical nuke you've got lined up for any blagger that dares to cross your Red Threshold.

Setting up is really easy. Plug Red Two in in the area to be watched, plug Red One in between some appliance you want to remotely control (I used a cassette player for this review, playing a little Bach) and the mains, and plug Red Leader into your Amstrad with the lead supplied.

Turn on your computer, then plug Red Leader into the mains. A little technical jiggerypokery later, and the Red Control Program Display (in white) appears on your screen.

Colour coding

The control program displays a list of red boxes currently plugged into your system, whether they're on or off, what time they're set to go off (or on) at, and how long for. It also allows you to set Red Leader's internal clock, turn anything on or off, and also to link devices together (so the hall light always comes on when the hall people detector detects people).

Before you can use a red box you've plugged into the mains, you have to install it on Red Leader. You do this by giving it a name, like Light1 or Detect, and then typing in its Id. The Id is a sequence of four numbers (does Freud know this?) totalling some 17 digits unique to each and every box. This both gives you a method of identifying boxes and prevents interference with a neighbour's boxes.

All this is accomplished by simple single key command selection and typing in numbers where necessary. When you've finished sorting out the times for everything you can leave Red Leader to get on with it and unplug your computer.

But if you're really keen, and want to go to town on your house, there's Red Basic. Selecting Quit from the Red Control Program leaves you with a] prompt. From this you can write programs to suit your exact needs.

Red Basic is a bit like BBC Basic (funny, that), but with Amstrad-style EVERY commands to do repetitive functions. It can also react to messages coming in by a WHEN command, and commands the rest of the squadron by TELL. So a typical program to blast burglars with a bit of Bach is

```
10 WHEN 'ALARM' GOSUB
BRANDEN:CONTINUE
20 GOTO 20
30 .branden
40 TELL("GHETTO",ON)
50 FOR F=0 to 4000: NEXT F
60 TELL("GHETTO",OFF):
TELL("ALARM",OFF)
70 RETURN
```

Line 10 tells Red Leader to go and do the subroutine called Branden if it gets a message from ALARM (which is what I've previously installed Red Two as). Line 20 is a bit of electronic thumb-twiddling. Lines 30 to 70 are the cassette player activation routine. Line 40 turns the cassette player (which I've called "GHETTO") on. 50 is just a delay to give the intruder a chance to savour the music. 60 both turns the cassette player off for the next time, and re-arms Red Two. The CONTINUE is the equivalent of a RETURN for a WHEN command.

Devices can be referenced by the name you give them, or the number between 0 and 9 Red Basic gives them when they're installed.

Programs can be saved to cassette or disc once finished, and in this and most other respects Red Basic has been well designed for the tasks it's likely to be put to. It's a bit tricky linking it to any of your computer's other functions, though. I tried to get my modem and Red Leader to work together (phone home and set the video...), but no dice.

Well read

And now the documentation paragraph. Not a lot to say about the 50 page booklet, except that it's red and seems to cover everything with a fair amount of detail.

But I would recommend the beginner programmer to get another book on Basic before tackling the Red Basic section. It's definitely for hardened hackers only.

There is a bit of a problem in the section that describes the Id label. It tells you that the Id is four numbers separated by commas, and to type it in exactly as it appears on the label on the box in question. Well, it appears minus a comma on my labels, and there was a bit of confusion at first. But common sense sorted it out. Overall a competent manual.

Bottom line time. Red Boxes appear to be a very good answer to the question "But what can you use a computer for". Once the gimmicky fun of using Arnold to turn on Sue Ellen has gone, the home security aspects are probably the most impressive, and likely to make Red Leader pay its way.

On the minus side I wasn't very impressed with Red Leader's internal workings. The power transformer got very warm, and appeared to be a little underrated, especially for something that's plugged in permanently. However, I didn't have any problems with it in practice.

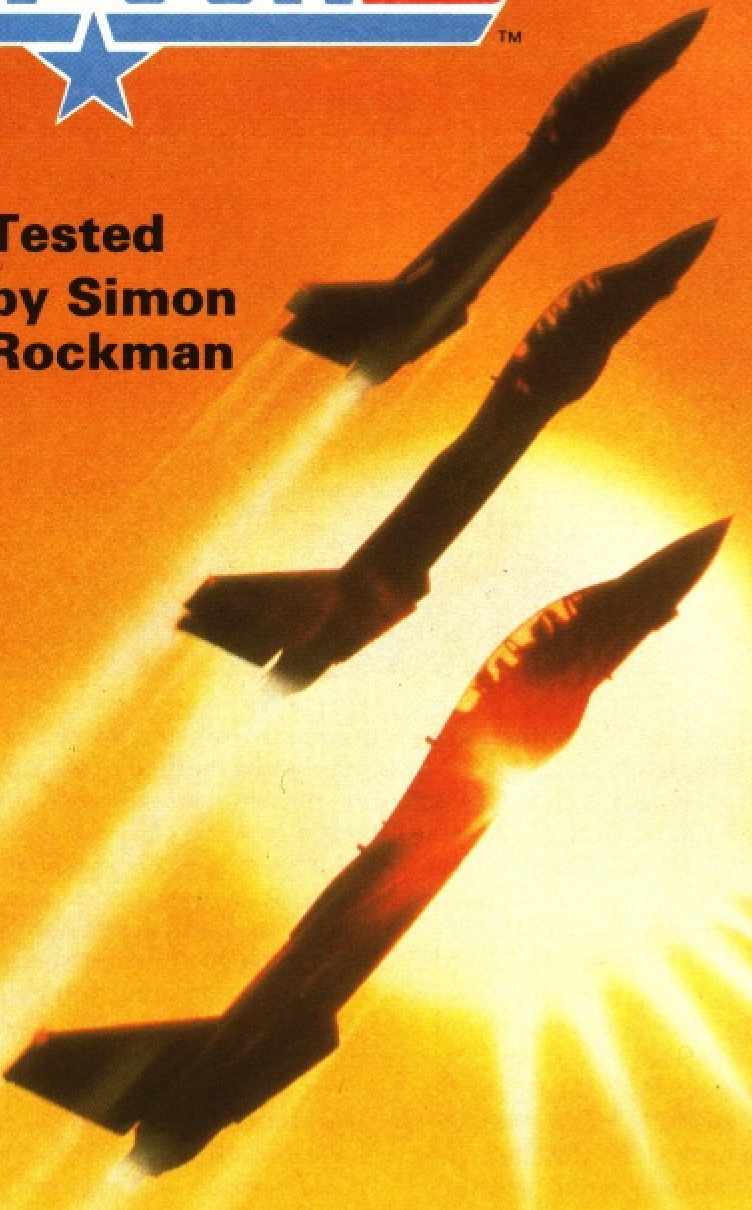
It's a shame that there's no battery backup to tide the reds over power cuts and that you can't pass computer data over the network. But the positive points, the ease of use, the practicalities and the potential of the Red Boxes far outweigh the negative side of things. I want some.

Product: Red Boxes
Supplier: General Information Systems, Croxton Park, Croxton, Cambridgeshire PE19 4SY

ACU

TOP GUN

Tested by Simon Rockman



The US department of defense come up with some odd ideas. Commissioning the Village People to record a recruiting song and producing a major film showing how exciting it is to fly in the Navy are just two of the things which go to make America great.

Another two things which make America great are Tom Cruise, voted "Hollywood's Top Gun" by Playboy magazine, and Kelly McGillis similarly voted "Prime Prospect, female". They are the stars of the movie version of Top Gun – although some people would claim that the aircraft are the real stars – and they are also featured on the loading screen of the computer version in glorious Mode 0.

Unfortunately that is the last you will see of the dynamic duo. The game is about flying, not sex symbols. The mid-air action takes place in your F14 Tomcat, pitting your wits against another equally matched 'plane.

Digital dogfight

The two player, head-to-head option make the controls a bit difficult to operate. The best bet is to go for the two joystick option, but you either have to use an Amstrad JY-2 or a joystick splitter. The menu, which offers you the choice of joysticks or keyboard controls for one or two players, could have been

Tactics

In an evenly matched battle it is important to learn quickly. Winning or losing depends on your proficiency at getting your opponent into your danger zone and at staying out of his.

★ Learn to bank sharply but don't over do it or you will end up where you started. Try to get away from the other plane before turning so that he is in your sights for as long as possible when you are facing him.

★ Keep high – it is very easy to crash into the sea. You can outfly the other plane, even under computer control, and force it into the drink, but it is tricky and not worth the risk. Build your speed and climb; build and climb alternately for the fastest rate of ascent. Getting high allows you to swoop, building up speed. This is useful if you want to loom up on the enemy from behind.

★ Remember which way is up. The limited style vector graphics don't give much of a clue as to where the sea is. If in doubt let go of the controls and the F14 will right itself into straight and level flight.

★ When you have just downed one plane keep climbing. The next one will then appear a little below you.

★ As soon as you leave the carrier apply thrust and turn. This prevents the other plane getting you in its sights before you know what is going on.

★ Learn to look at the whole screen. Most of your time will be spent looking at the radar, but keep an eye on your opponent's screen. The damage indicator will help you to decide between missiles and bullets the next time he is in your sights. Your rival's horizon tells you which direction the other F14 is going in, and helps you to avoid the danger zone. Keep an eye on the sights, and be prepared to drop a flare when a missile appears.

★ You can't "viff". OK, so only Jump Jets can really viff but you cannot fool the computer into overtaking you by braking too hard.

★ Don't mess with Charlie.

better designed. The red, white and blue logo looks good enough but pressing fire on the joystick puts you straight into the game with keyboard control.

The options are re-set at the start of every game, but you soon learn not to be too trigger happy.

To the background music of the track "Dangerzone" the rival planes launch from remarkably similar looking aircraft carriers set against remarkably similar looking backgrounds.

The graphics on this screen are stunning and provide a stark contrast with those which follow, two monochrome windows with a single line across the width of each window.

Controls

This is when you try to remember what the instructions said. Top Gun is perhaps the simplest flight simulator the Amstrad has seen, no messing with an undercarriage or flaps. In many ways it is to flying what Elecktraglide is to driving, simple, fast and exciting.

This does not mean that it is inaccurate; unfettered by details, the handling has been tweaked, the planes are less stable at low speed and handle badly when inverted.

Still, even a grossly simplified version of a multi-million dollar F-14 has to have some instruments. A head up display (HUD to the pros) shows your height and speed. Dashboard-mounted controls show you the plane's attitude – dive, climb or level flight with several readings in between. Your angle of ascent or descent has an important effect on your speed.

In a dogfight it is more important to know where your foe is than where you are yourself. The radar shows your position in the centre and the bandit in relation to it. Only one plane attacks you at a time so the radar doesn't get too confusing.

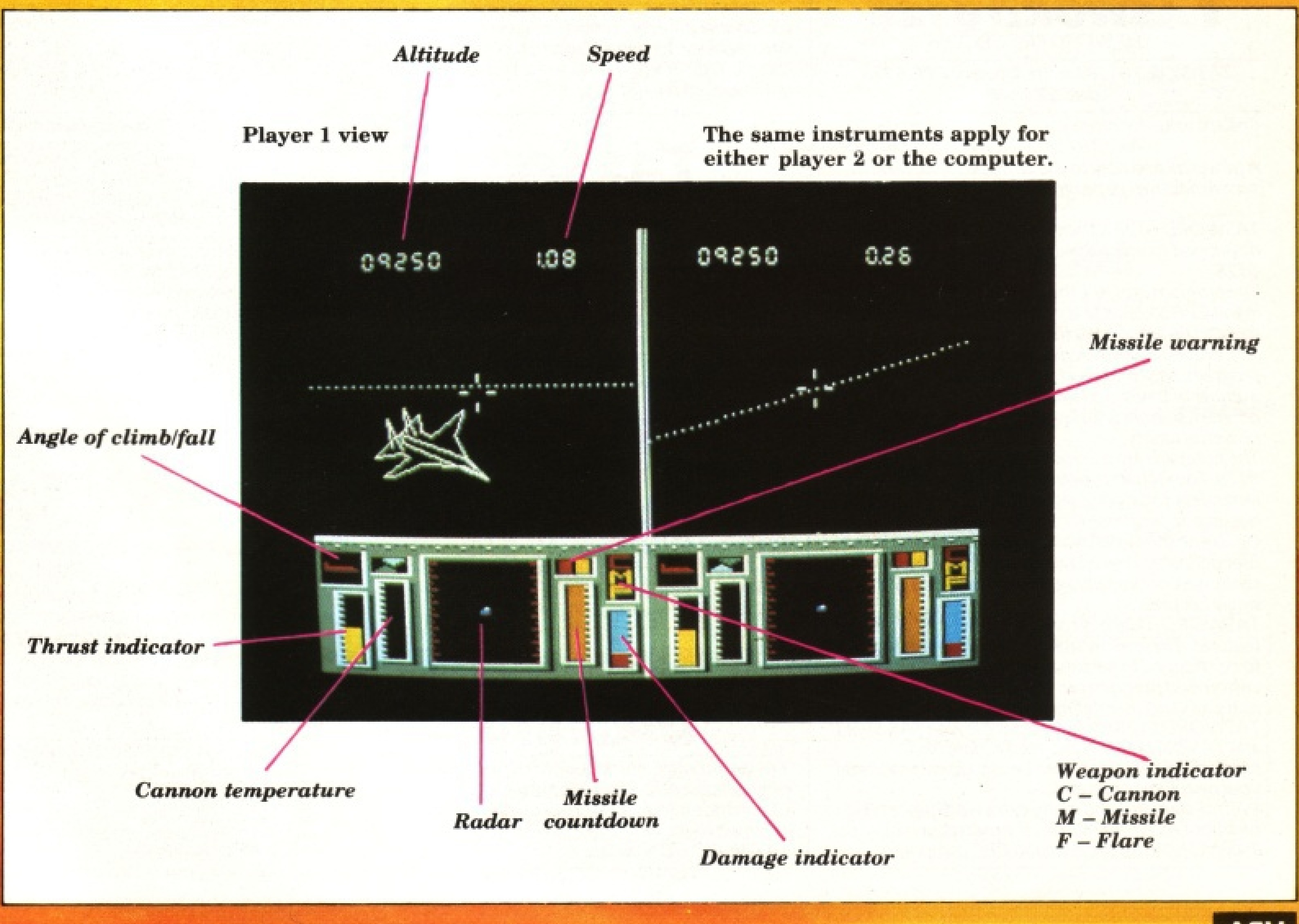
Sticks and stones will bounce off an F-14, but bullets will really hurt you. How much damage you have sustained is shown by an indicator. You are OK while the meter is still true blue, but when it gets into the red you've got something to worry about, and he's usually on your tail pumping bullets at you.

That's not the worst of it. If you're really unlucky he won't be shooting bullets but missiles. A light on the instrument panel will warn you of this and allow you to take evasive action. No human player seemed to have the knack of out-flying heat-seeking missiles, but the computer managed it. Mere mortals can confuse the sidewinder menace by dropping flares.

Even smart missiles can't work out what to blow to kingdom come without being told – they need to lock-on. In Elite they do this instantly, but a Cobra Mk III is a little better equipped than a Tomcat F14.

Twentieth century missiles take three seconds to work out what you are going on about. And I thought that the bomb in Dark Star was dumb. These seconds tick away on a bar graph. Keep the blighter in your sights for long enough and he will have the biggest and last shock of his life just after you squeeze the trigger.

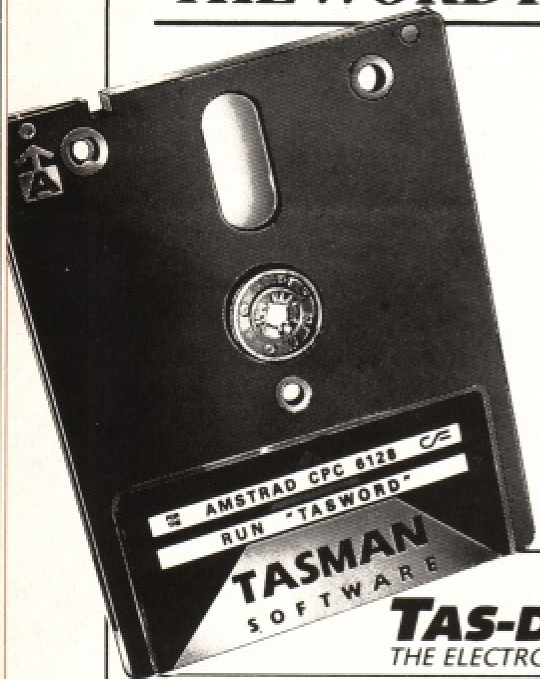
Even shooting at your foe is limited by the gun temperature. If it overheats you have to wait. A thermometer warns of this impending restriction. Two gauges show the weapon in use, the dash-mounted one is rendered pointless by the gun sights. A cross-hair points to the destination of your bullets, a box indicates missile mode and the absence of any aiming device suggests that pressing the button will release a flare.

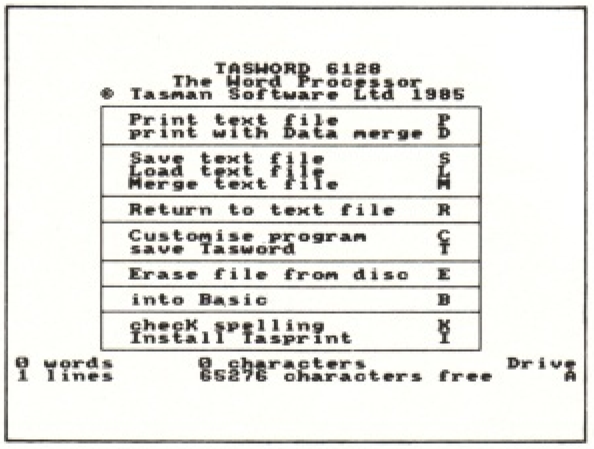


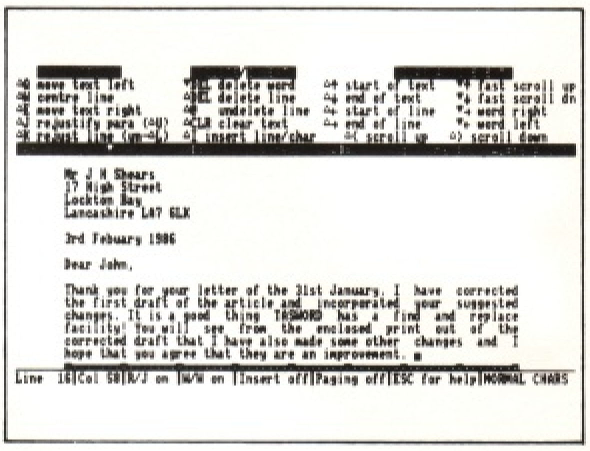
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TASWORD 6128

THE WORD PROCESSOR FOR THE AMSTRAD CPC 6128







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Brilliant value for money.
AMSTRAD ACTION December 1985.
A powerful and easy to use word processor and a superb data merge program.
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TASWORD 6128 is the word processor especially developed to utilise the extra memory in the CPC 6128.

The program uses ALL the additional 64K of memory in the CPC 6128 as text space. This means that text files can be around ten thousand words long.

TASWORD 6128 includes a built-in data merge program. Mail merge, in which a letter is printed any number of times, each individually addressed to a different person, is just one of the applications of this powerful facility.

The notepads are a unique feature of TASWORD 6128. Four separate notepads are available. Typing reminders and storing letter headings are just two possible applications for the notepads.

Up to one thousand characters can be stored in ten user definable keys allowing commonly used words, sentences, or even paragraphs to be typed with a single keypress.

TASWORD 6128 has comprehensive customisation features. These allow many of the program facilities to be changed to personal requirements. A customised program can be saved and includes the notepads and user definable keys.

TASWORD 6128 is fully compatible with TAS-SPELL and TASPRINT. It will also read in data from Masterfile 6128. It can even be used to enter and edit your own Basic programs.

With all standard and many extra word processing facilities TASWORD 6128 is the most powerful of the TASWORDS, for the Amstrad CPC computers.

TASWORD 464-D

THE WORD PROCESSOR – WITH MAIL MERGE!

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This is the new TASWORD especially developed to utilise the capabilities of the CPC 464 and 664 disc drives. The additional facilities include a larger text file size and automatic on-screen disc directories during save and load operations. A major new feature is the mail merge facility. This gives multiple prints of your standard letters, forms, etc., with each copy containing, for example, a name and address automatically taken from a disc file containing the data. This data can be entered using TASWORD 464-D, or created using the Masterfile Program Extension package. A powerful and useful conditional printing facility is included – parts of a document can be printed according to user-specified criteria. TASWORD 464-D will only run on, and is only supplied on, disc.

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Please note that TAS-SPELL will only work with TASWORD 464-D and TASWORD 6128.

TASWORD UPGRADES

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TASPRINT 464 drives the dot-matrix printers listed below and can be used to print AMSWORD/ TASWORD 464 text files. TASPRINT 464 gives your output originality and style. Completely compatible with the 664 and 6128.

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POPULAR COMPUTING WEEKLY, NOVEMBER 1984

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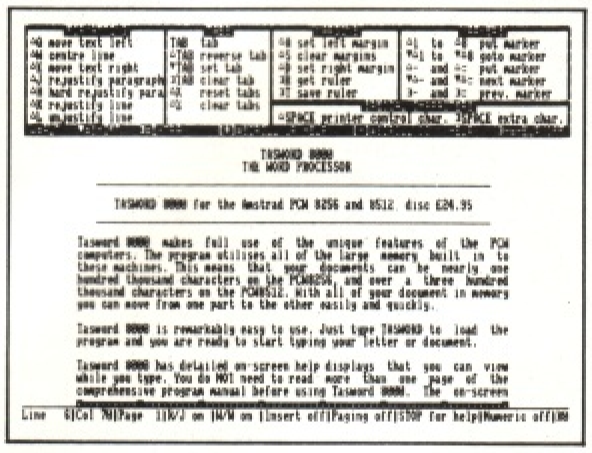
A suite of fast machine code screen copy software for the CPC 464, 664 and 6128. Print high-resolution screen copies in black and white and also large 'shaded' copies with different dot densities for the various screen colours. TASCOPY 464 also produces 'poster size' screen copies printed onto two or four sheets which can be cut and joined to make the poster.

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EPSON MX-80 TYPE III	NEC PC-8023B-N	DATAC PANTHER II	

TASWORD 8000

THE WORD PROCESSOR FOR THE AMSTRAD PCW 8256 AND 8512



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THE WORD PROCESSOR

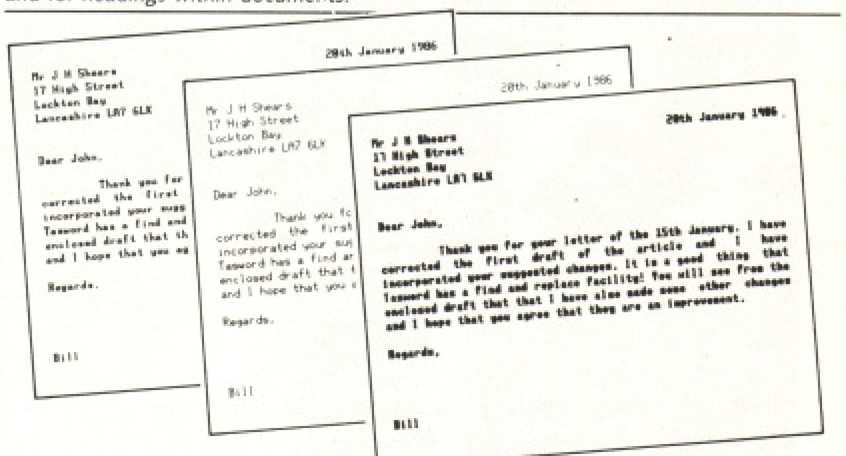
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TASWORD 8000 offers a fast and flexible approach to word processing on the PCW 8256 and 8512.
TASWORD 8000 has been especially developed to make use of the unique features of the PCW computers, utilising ALL of the large memory built into these machines. Your document can be nearly one hundred thousand characters long on the PCW 8256 and over 300,000 characters long on the PCW 8512. That's enough room for over 100 pages!
TASWORD 8000 is fast! With all of your document held in memory at any one time, there is no need for the program to access the disc as you move through your text. Cursor commands allow the user to move through the text both easily and quickly, even with very long documents. TASWORD 8000 allows you to move rapidly to the start or end of your text and to ANY line or page number.
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TASWORD 8000 includes a sophisticated set of print options which allow you to print any part of your document, automatically number pages and print headers and footers. Printing multiple copies of a document is easy – just enter the number of copies required. TASWORD 8000 can be used to take full advantage of ANY printer connected to the PCW via the Amstrad parallel/serial interface.
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All TASMAN 464 software is fully compatible with the 664 and 6128

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```
Welcome to Gods.

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Below you can see a Mediterranean port. You  start  to  fall towards
it. At first, you hope that you are going to hit the sea, but it soon
becomes apparent that you are going to land right on top of a rather
pretty building. The last thing you notice is a courtyard with a coach
standing in it,  next  to the building whose roof you are about to
demolish, and  then your scream (which started some time ago) suddenly
cuts  off as you pass out.

Your Hotel Room
 who
Chameleon the Difficult to See
Caz
Angelina the Dangerously Sane
Tiger Tiger
 shout hiya again
 w
Inn Yard

Tiger Tiger shouts, 'Hi Chammy'
 n
Covered Way
 n
Lane
 n
Arab Gateway
A dead Arab guard is crumpled in a doorway to the West.
 n
Angelina the Dangerously Sane shouts, 'Hi Chammy'
 Maidan
 e
Grove
 guard:blob
The guard leads you along the grove of te
takes you in, and backs diffidently out.

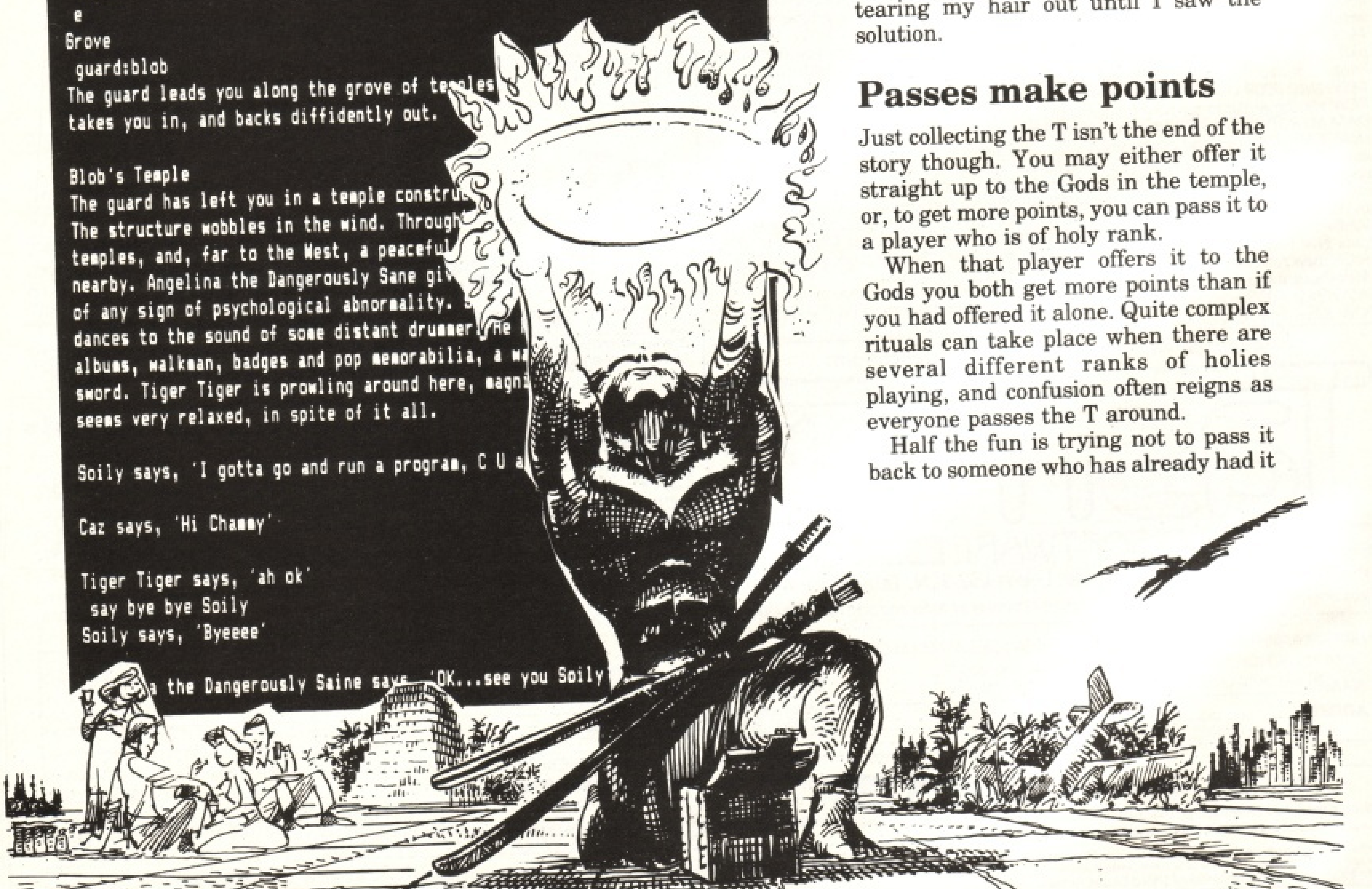
Blob's Temple
The guard has left you in a temple constru
The structure wobbles in the wind. Through
temples, and, far to the West, a peaceful
nearby. Angelina the Dangerously Sane gi
of any sign of psychological abnormality.
dances to the sound of some distant drummer
albums, walkman, badges and pop memorabilia, a w
sword. Tiger Tiger is prowling around here, magni
seems very relaxed, in spite of it all.

Soily says, 'I gotta go and run a program, C U a

Caz says, 'Hi Chammy'

Tiger Tiger says, 'ah ok'
 say bye bye Soily
Soily says, 'Byeeee'

a the Dangerously Saine says 'OK...see you Soily'
```



Ye G

You have landed in The Lap of The Gods and just outside your hotel room is a whole new world to explore. Sometimes dangerous, often funny, incredibly addictive, it is most of all fun.

A relative newcomer in the multi user game field, Gods – as it is affectionately known – breaks the normal mould of such games to provide an environment where cooperation between the players gets you further than the more traditional "hack and slay" approach of some other MUGs.

Playing Gods is more like being at a huge social gathering than playing an adventure. Like most MUGs, you explore the world searching for Treasure – or T – with which to increase your magical reserves. Some is just lying about for you to pick up if you know where to look, but often quite convoluted puzzles need to be solved to gain access to the more valuable items. A really good one nearly had me tearing my hair out until I saw the solution.

Passes make points

Just collecting the T isn't the end of the story though. You may either offer it straight up to the Gods in the temple, or, to get more points, you can pass it to a player who is of holy rank.

When that player offers it to the Gods you both get more points than if you had offered it alone. Quite complex rituals can take place when there are several different ranks of holies playing, and confusion often reigns as everyone passes the T around.

Half the fun is trying not to pass it back to someone who has already had it

Gods!

Multi-user games are the most expensive adventures you'll ever come across – played down a modem your phone bill goes through the roof as your characters grow in strength. Chris Wood is our guide.

or who is of the wrong rank. Amid this general mahem and confusion several conversations are usually going on which makes for a very enjoyable game.

One thing guaranteed to keep you on your toes is the flash of lightning the Gods use in order to destroy any T that is not passed correctly. The perpetrator is fined a large amount for such a mistake. This breaks the ice, making it easier to get to know people than if the only real option was to either steal from them or kill them for the T.

The Gods are fairly strict on discipline in the temple too – no spitting, stealing or fighting is allowed inside, although a lot of kissing and cuddling certainly goes on!

A wide range of actions and emotions is available, with more verbs being added all the time. Currently you can Smile, Laugh, Guffaw, Cry, Burp, Giggle, Blush, Grin, Snort, Frown, Kiss, Cuddle, Stare, Smirk, Spit, Kill, Steal and Whimp. More actions will have been added even as I write.

Thud and blunder

Most people in the game are of non-violent persuasion, and although you can certainly kill people you get no points for doing so. A recent development is the fighter class persona for those of us who really feel more at home hacking and slaying.

Most people have a fighting persona for skirmishes and quite often huge impromptu pitched battles take place while onlookers spur the combatants on.

If you get killed you lose half your points to the victor but, as not many people have survived very long, their fighter is not a threat to anyone else – except for one.

Grim the Grim is the fighting persona of a certain Grimly Fiendish and she is a formidable warrior who looks like being the first person to get to Devil – or She Devil – the eventual evil equivalent of a God. Fighters be warned!

You must travel through several ranks before becoming holy. Starting as Scum and working your way up through Nonentity, Riff-Raff, Salt of the Earth and several others you reach the lowest religious rank of Initiate.

Thereafter as you rise through the religious ranks to Monk, Priest and accelerate towards that elusive goal of God your T increases in value when you offer it. As your stature increases in the game so too do your magical powers with which to cast spells.

This spells trouble

Spells currently available include WHERE for finding out where someone is, SUMMON for fetching or helping lesser beings should they be lost and JOIN, which is the opposite of SUMMON.This is especially useful when you are in a hurry to get to that battle or conversation.

Others currently available to only a select few are due to filter down to the lower ranks. These are WATCH to see just what that naughty guest is doing, and FORCE to make someone execute a command.



Of course the higher ranking you get, along with the increase in power you also have an increased resistance to people using spells on you, just to keep things fair.

The players

Lap of the Gods Ltd consists of the sysop Tiger Tiger (usually known as Tiger), his assistant, Major Malfunction, and Lucy. Advertised on what was then the LWTC bulletin board last year, Gods saw its first player other than Tiger on Christmas Eve 1985.

Since then the system has outgrown the front room it was in – not to mention the house – and after being transplanted to a semi homebrew VME Bus 68000 Unix system running a version of Uniplus, Tiger installed four extra phone lines in the new premises, thus allowing himself to actually talk on the phone again.

Several members soon became attracted to Gods, such as Angelina the Dangerously Sane, Lucy, Locoman the Profreader (sic), the fierce Grimly Fiendish, and Major Malfunction.

These founder members, along with Tiger, have helped to playtest the game into vaguely the form it is today. After its initial success more phone lines were added to the point where presently eight people can be on the game at a time, in addition to Major, Tiger and Lucy.

A growing world

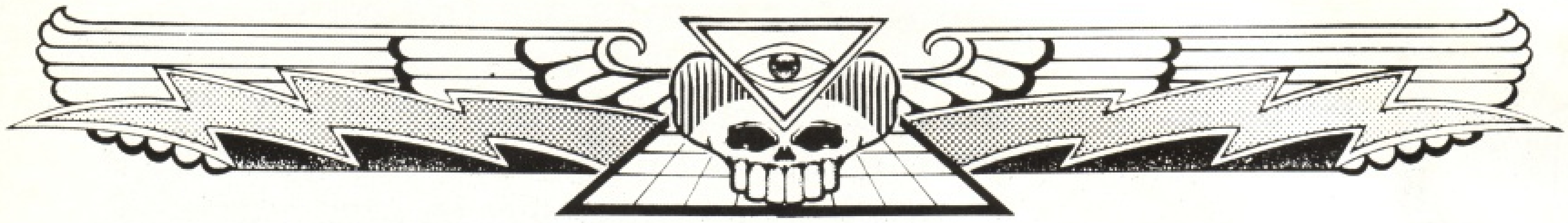
The machine is capable of handling up to 16 players, and as soon as more people subscribe Tiger will be getting the lines plumbed in. The machine keeps growing all the time and will soon be upgraded to run on 68020 boards which will be able to cope easily with 200 players at a time. This, incidentally, will also allow it to run three times faster than a VAX 11/780 on which Mud 2 runs.

Other players have contributed lots of time and energy to Gods and are well on their way to getting their own temples. Tarim (the terrible), Bug Finder Extraordinaire, is currently the highest ranking player behind Tiger himself and is well on his way to God. Hot on his heels and catching up fast is Argon the Noble (Twinkle Toes) with Jurgen a little way behind him.

Things should really start to hot up in the next few months as the various Gods will have to woo the lesser players to their temple in order to gain the most points and indeed to stay as Gods, as doing God-like things like creating new locations will be very expensive in terms of Magical Reserves.

Gods have the ability to create whole new rooms, objects, puzzles and T, which will become permanent additions to the game, so it will always keep having something extra to explore. Objects can be useful, like weapons or carrying containers, or red herrings, or just plain fun.

Latest addition to the game is a camera. Typing SNAP will cause a little imp to paint a picture of what you see and pop out of the camera and hand



you the photo. You can pass it around and it may even be possible to make the photos valuable at a later date.

At the moment though, they are a very useful way of seeing yourself as others see you. This may sound strange, but you have the option to include a brief description of yourself which people will see whenever they enter a location with you in it. There are examples in the text below.

There is also the option to have your own customised hotel room into which you can invite people for a private chat.

Soily, for example is sitting in the front row of the Hammersmith Odeon, enjoying a pop concert, whereas Blue Adept has a Unicorn drinking from a fountain in a large marble room of a palace somewhere. Spot the Dog is in his idea of heaven – a lampost testing factory.

A God will have the ability to bestow favours on lesser players, such as giving them the temporary ability to kill a particularly nasty guard standing over a piece of T. Only if the person subsequently offers it up to the right God when they have got it, of course!

Gods is being constantly added to and improved. At the moment all the players are able to access all the T, assuming they can work out the puzzles. But as more and more people are becoming holy, new T for holy ranks only is soon to be introduced. This means that as you increase in rank you have access to more parts of the adventure with a new supply of puzzles and T.

This is to cut down on the inevitable race for the T that occurs after each reset and soon there will be randomisation of a few of the key pieces of T so more people have a chance of getting it.

Resetting the game after all the T has been "Blobbed" (the present, and only God is called Blob) is done in a very democratic manner too. After half an hour a bell appears on the pier and everyone playing at that time must ring it before the game will reset.

This gives people a certain leeway should there be conversations or private battles going on about the game.

Of the original 2,000 planned locations, more than 1,000 are implemented. This number will grow when the newer puzzles and Holy T are introduced, as well as when the Gods start creating new locations.

The current locations are divided into several differing time zones and areas, such as the African Jungle, complete with man eating tigers that attack on sight, the Colleseum and the Town around the port. A space age section is soon do to be added.

Another thing planned – Tiger is certainly not short of ideas – is Hireable mobiles (mobiles are computer generated characters). You could hire a mobile to follow you around, protecting you from other possibly aggressive players, or guarding doorways while you battle with a puzzle to get to that elusive new bit of T you are sure is nearly within your grasp.

You will also be able to have battles in the Arena which people will be able to watch from the Grandstand. This gives you a view over several locations at once and betting will be allowed on the outcome of the various battles.

An example of solving one of the sinpler puzzles is given below. The problem is to get hold of the Rod, a medium value piece of T. The awful spoof idea involved gives you an example of some of the humour running throughout Gods.

I have included some text of when I was but a guest, and met Tarim for the first time, with dire results. He did keep his promise though. The final bit of text is Tiger himself telling how and why Gods was born.

For anyone wanting more details about Gods, Angelina the Dangerously Sane runs The Gods Slot on Prestel, Page number 81052, which contains some 20 pages of introduction, all the updates to the game since its start, how to register and use it and a section on the new fighter class personas.

The hardware and software of Gods is available to anyone who is interested in running their own MUG, and details can be obtained from the address given below.

Gods is available on 01-994 9119 after 6pm weekdays and all day weekends. Speeds are 1200/75 and 300/300 although the former is much, easier to use, protocol is 8 bits, no parity.

For those who want a taste of Gods to see if you like it, there is a guest account which allows you 15 minutes of play. Should you decide to join registration costs £25 and lasts for three months. This is unfortunately likely to change.

There are no other charges apart from your phone bill, which certainly makes it easily the cheapest MUG around, hour for hour. If you have neither a computer or a modem Gods can supply those too, details from the same address.



Lap of the Gods Ltd, 166, Portobello Road, London W11 2EB
Tel: 01-256 8427
Registration fee: £25 plus VAT

Gods number. Tel: 01-994 9119
Account: Guest
Password: Guest 8 bits no parity.
Prestel page no. 81052

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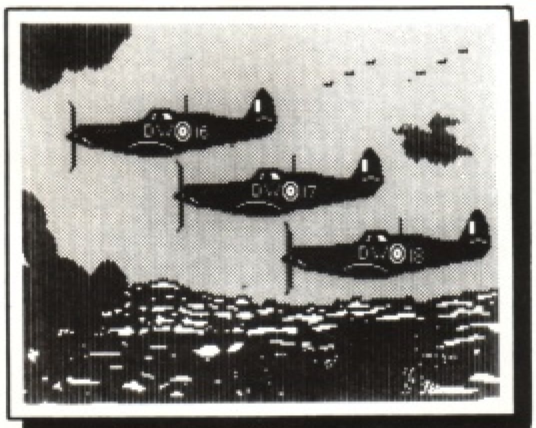
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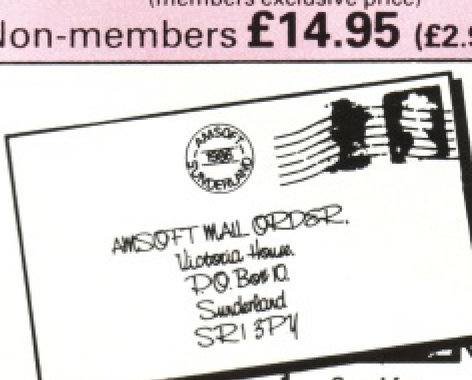
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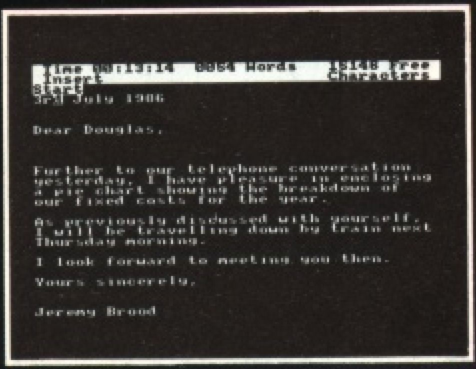
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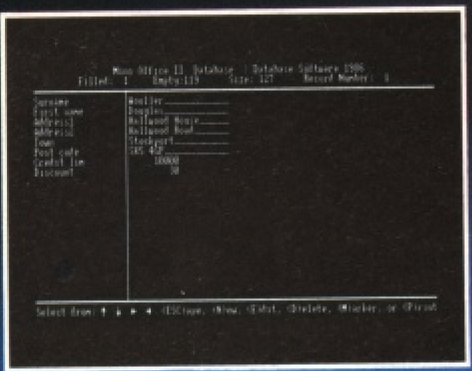
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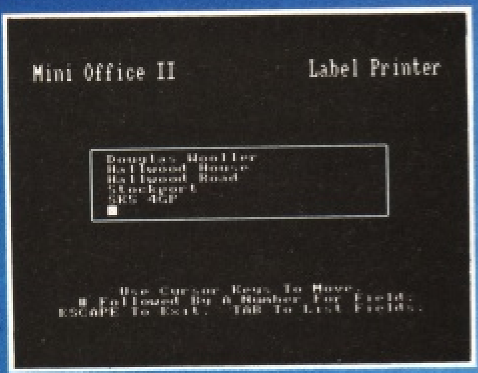
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A team of leading software authors were brought together to devote a total of 26 man years of programming to the development of Mini Office II. What they have produced is a package that sets new standards in home and business software.

The sample screenshots above illustrate just a few of the very wide range of features, many of which are usually restricted to software costing hundreds of pounds. Most are accessed by using cursor keys to move up and down a list of options and pressing Enter to select.

Is it that easy to use? Several leading reviewers have already sung its praises on this very point.

Yet possibly the best advertisement for Mini Office II is that it comes from the same stable that produced the original Mini Office package back in 1984.

That was so successful it was shortlisted in two major categories of the British Microcomputing Awards – the Oscars of the industry – and sold in excess of 100,000 units!

It was up to Mini Office II to take over where the first Mini Office left off, with 32 extra features, two additional modules, a program to convert existing Mini Office files to Mini Office II format, and a 60 page, very easy to follow manual.

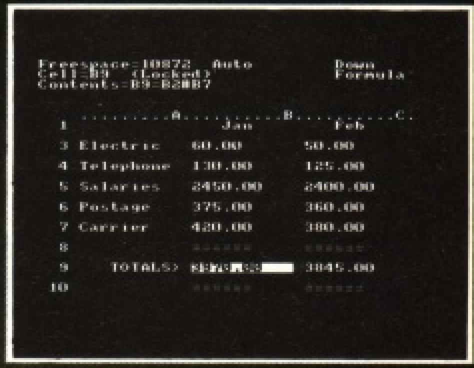
This is the package thousands of Amstrad owners have been waiting for – and at a price everyone can afford!

tONE package!



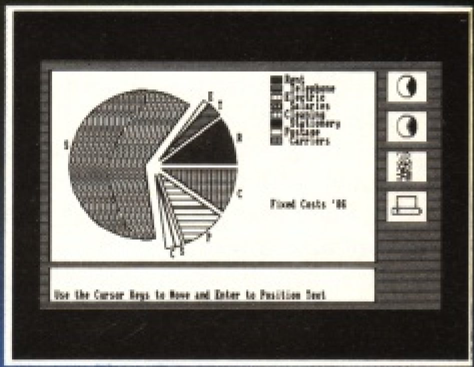
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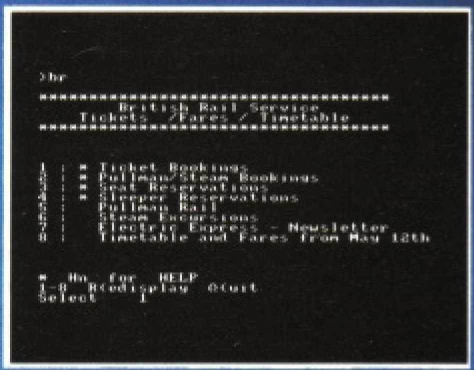
GRAPHICS

Enter data directly or load data from the spreadsheet, produce pie charts, display bar charts side by side or stacked, overlay line graphs – and more!



COMMS MODULE

Using a modem you can access services such as MicroLink and book rail or theatre tickets, send electronic mail, telex and telemessages in a flash – and more!



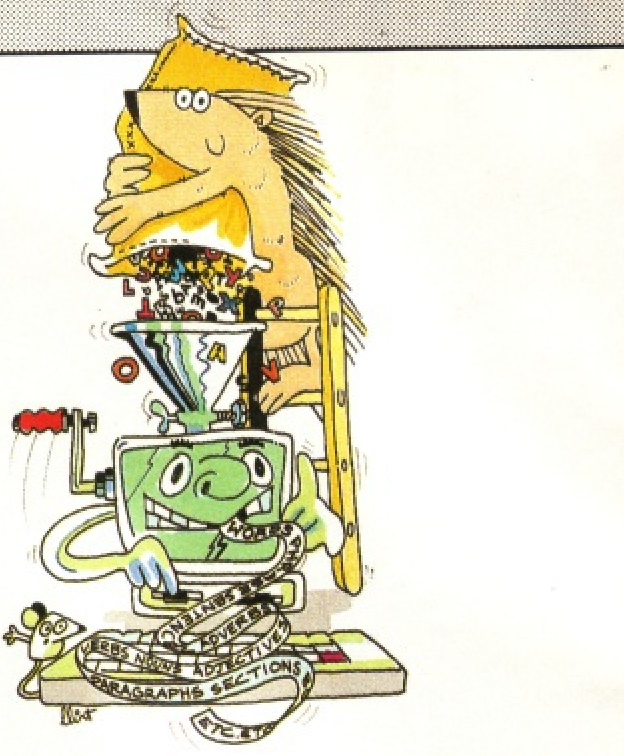
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Weighing up the prose and cons



Arnor – a well established name in CPC circles – has already made a foray into PCW waters with ProSpell. Now Protext has been added to the stable and Simon Rockman has been putting it to the test

With so many different Amstrad computers on the market it is expensive for a software house or shop to keep stock of different products which share the same essential core.

CP/M Protext will run on a CPC 6128, PCW 8256 and PCW 8512. Producing software which can do this is not too difficult. Ensuring that it uses the machine you have to the fullest takes a bit more care.

It is this installation which makes setting up Protext a little confusing, particularly if you have never used a computer before. However, Arnor has done its best to automate the procedure by including two files called MAKE PCW and MAKECPC – follow these carefully and you will end up with a start of day disc.

After you have used this for a little while you will want to customise Protext for your needs. This can be done by editing a program file called SETUP. Arnor supplies this in a form which is easy to modify. PCW 8512 users will find it particularly beneficial to copy some of the file to the ram disc and to set up a temporary work file in ram.

A CONFIG file determines many of the default values in the software and can be edited for further fine tuning – even to produce eye-straining black text on a green background if that's your fancy.

A start of day disc can be used to start up a PCW in the same way as a LocoScript system disc.

Using Protext on a PCW can be disconcerting for anyone used to LocoScript. The menus have been replaced by a command mode and the header by a ruler and a set of embedded command codes.

WordStar uses dot commands to define things like printer control codes and force page breaks. This makes life difficult when using another system, such as Telecom Gold, which also uses a dot in the first column to signify a specal function.

Protext uses the > symbol and has embedded codes which replace all the features of a LocoScript layouts. They are handled as text and can be saved and merged as blocks when you have templates you like. Unlike layouts they cannot be numbered.

So if you have two different layouts, say one for a stage instructions and another for spoken text, then you will have to put in a new template each time. However, if they only vary slightly you need only mark the differences and not use too much memory.

Command mode

Major functions such as loading and saving are performed from outside the document. This takes a little getting used to but is just as fast as the LocoScript menu system. There is a huge range of these, each detailed by the extensive help system.

My favourites include the Count command which will count the number of words in the whole text or just marked blocks, and Calc which will handle simple arithmetic with the option to insert the answer into the text. Both are ideal for working out how much an article is worth.

Even LocoScript's direct print feature has been replicated by the TW (typewriter) mode. Direct Print was supposed to be used for short jobs like writing compliments slips but I find it more of an effort to use than finding a pen for jotting a quick note.

The commands are quite intelligent. Typing m on a PCW will switch to drive M, whereas typing m filename.txt will merge a file. The abbreviations for the commands are obvious and make quite complicated functions very fast. Seasoned emigrants from CPC Amsdos Protext will feel very much at home.

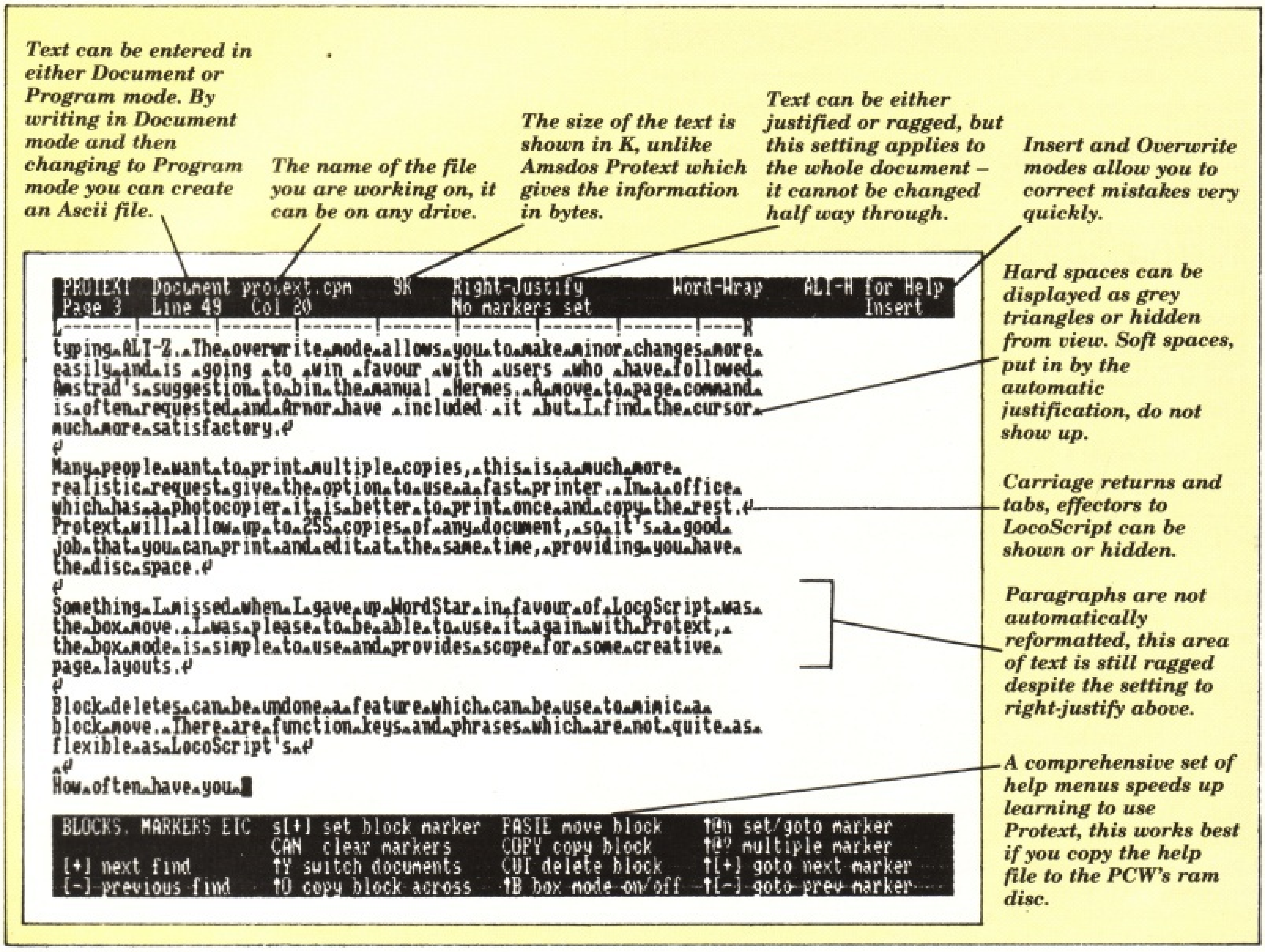
LocoScript Find and Exchange was one of the last functions to be added and although it is very friendly it is

Set editing options

Default drive for text	: B	Tabs/returns displayed	: Y
Default group for text	: 0	Spaces displayed	: N
Insert/Overwrite mode	: I	Control codes displayed	: Y
Right justify on	: Y	Format after spell on	: Y
Word-wrap on	: Y	Prompt for format after spell	: Y
Box mode on	: N	Document/Program mode	: D
Help lines on	: N	Doc/prog mode for imported files	: D
Background printing on	: Y	Decimal tabs commas/full stops	: .
Prompt for background printing	: Y	Undelete buffer size	: 512
Delete warnings on	: Y	Cursor flash rate	: 500
Auto reformatting on	: Y	Temporary text drive	: M
Page break lines on	: Y	Sideways scroll increment	: 20

Default string to find :

Config allows you to tailor Protext to suit your needs



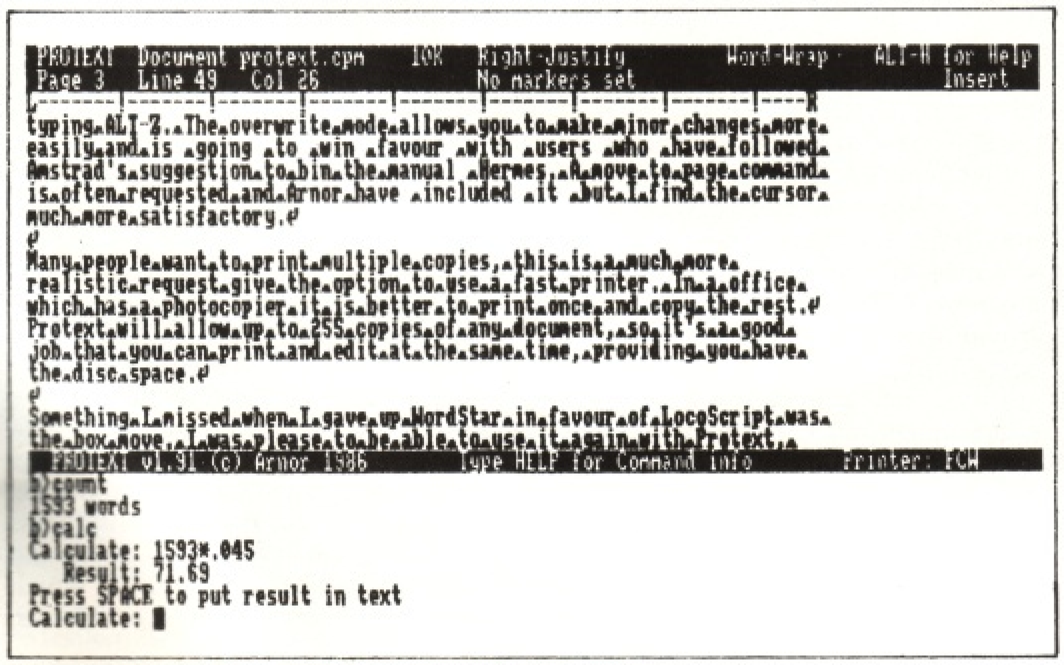
Protext in Edit Mode

always case specific and cannot replace codes. The Protext replace is more like that of WordStar – with wildcards, a choice of whole or part words, and codes – although the code mechanism is not as powerful or easy to understand as LocoScript's.

I was pleased to find that the EXCH key automatically puts you into command mode and types replace for you. This level of integration with LocoScript will help PCW owners get into using Protext.

Relay performs a paragraph reformat with a similar result to LocoScript's Para which just takes you to the end of the current paragraph. Arnor's definition of a paragraph is different and will take you to the next forced carriage return. Locomotive will take you to the next forced carriage return which follows a soft return.

The screen presentation cannot be customised as easily as under LocoScript: ALT+S displays spaces, ALT+T shows effectors but codes and templates cannot be removed. Similarly blanks cannot be displayed. None of these really matter but they give the software a different feel.

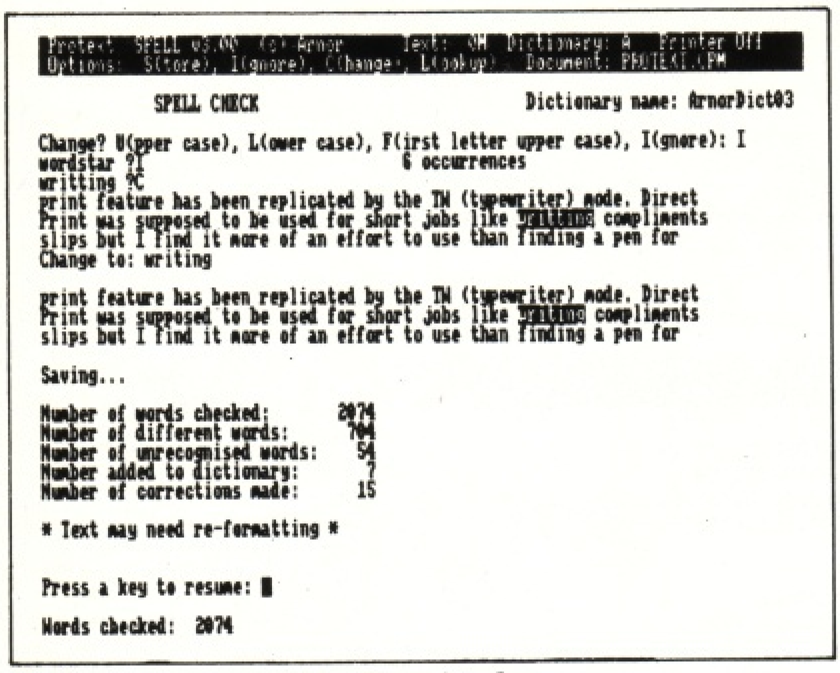


The Command mode offers loads of features

Protext loves Joyce

Unlike other CP/M word processors which have been touted for the Joyce — WordStar, Superwriter et al – Protext has been written with the Joyce in mind. Even the best installation of WordStar can't match Protext for ease of use. It is only when you move from CPC/Amsdos Protext to PCW Protext that you realise how many keys the PCW has.

These make moving around the document very fast. Perhaps Protext's greatest selling point is its speed, especially when compared to the infamously slow LocoScript. However, the multitude of keys makes things confusing – a hint card would be very helpful.



Spell checks your prose for mistakes

Software ethos

There are two types of programming: Structured, which is slow but elegant and Quick and Dirty which is – well, quick and dirty. Both get the job done but the second makes life more difficult when you want to add a level of complication.

LocoScript is like a structured Pascal program – you have lots of setting up to do but very little trial and error to get the result. By contrast, writing a Protext document is like changing a Basic program.

I can see the merits of structure but would rather have results than beauty and detest structure for its own sake. Perhaps that is why I prefer Protext. Like changing a Basic program, you see the results fast – but you pay a price for this speed.

Why it is so fast

LocoScript holds a document formatted. If you make a change which causes the text to become unformatted then LocoScript will stop to neaten things up when you cursor off the paragraph. When you save a document LocoScript checks to make sure that all is neat and tidy before it will talk to the disc.

Protext doesn't care about formatting. There is a general format command which will tidy up the whole document and ALT+F will tidy up a paragraph but you don't have to use them. You can even print unformatted text, although the command >FP will format while printing

Protext has less control over the printer than LocoScript, because it is designed to work with any printer and only uses standard control features. LocoScript is the only word processor I know that can mix point sizes, from 17 pitch to 5 pitch, within a line and still keep within the margins. The printer drivers and >OC commands owe much to the two BBC Micro packages.

This all means that Protext does not know where page breaks fall. You have to print out the document or use the >PS command to print to the screen, then make page break changes. If you are writing for a hot metal type newspaper or an old school publisher this is a major shortcoming since they require whole paragraphs to be carried forward to the next page.

Editing features

Arnor has looked at the features which users have praised and criticised in WordStar and LocoScript. The major improvement may be speed but there are other plusses. Typing mistakes such as "hte" instead of "the" can be corrected by putting the cursor on the h and typing ALT+Z.

The overwrite mode allows you to make minor changes more easily and is going to win favour with users who have followed Amstrad's suggestion to bin the manual Hermes. A move to page command is often requested and Arnor has included it but I find the cursor much more satisfactory.

Many people want to print multiple copies, a much more realistic request given the option to use a fast printer. In an office which has a photocopier it is better to print once and copy the rest. Protext will allow up to 255 copies of any document, so it's a good job that you can print and edit at the same time – providing you have the disc space.

Something I missed when I gave up WordStar in favour of LocoScript was the box move and I was pleased to be able to use it again with Protext. The box mode is simple to use and provides scope for some creative page layouts.

Block deletes can be undone, a feature which can be used to mimic a block move. There are function keys and phrases which are not quite as flexible as LocoScript's.

How often have you wanted to copy information from a document you wrote earlier? Protext allows you to do this by holding two documents in ram and swapping between them. You can even copy blocks across à la The Word on the Macintosh, or at least I imagine it will since on my preproduction review copy of Protext the twin document option had not been implemented.

Getting converted

Perhaps the feature I miss most with Protext is the ability to read LocoScript files. Arnor can do it since ProSpell can read LocoScript documents – even if the end result is not always what LocoScript would produce.

With a program aimed squarely at a sea of LocoScript users this seems to be a major failing. You can convert files using the Make Ascii function but that means loading LocoScript.

Still, Arnor does offer the ability to read WordStar files and to save both Protext and standard Ascii files – essential for writing programs.

Under the Spell

Prospell has been around for a little while and given Arnor's policy of continuing development (as it says on the packet) is probably the most refined part of the suite.

Essentially what Spell does is take a document, sort all the words into alphabetical order and then work through comparing them with a dictionary.

When Spell finds a word which you know and it doesn't the word is questioned. You can either change the spelling, in which case it is shown in context before the alteration is made, store the word so that Spell will never ask you about it again, ignore it so that it stays unchanged or ask Spell to come up with a correct spelling.

ProSpell is not as friendly as LocoSpell and is a mite slower (according to some figures from Locomotive software), but it does all the sorting away from the document so you can leave it to do the searching and checking – go and make a cup of tea then come back to go through the mistakes. This may not be faster but it feels as though it is.

You can use the dictionary to cheat at crosswords by using wildcards and asking for words with blanks in the middle. Dictionary maintenance is simple enough and the ability to add multiple custom dictionaries means that you can keep one disc for checking your articles on fishkeeping and another for your film scripts, so saving time when checking something which is unlikely to have the name of a fish in it.

The major point in favour of Loco-

Spell is that it can be used to look up the spelling of a word while you are writing. Prospell takes too long to boot to be worth using for this.

Mixing in

Mail merging is complicated, requiring a full understanding of how the software treats data. When you write an address you just put down what is necessary. You recognise things like telephone numbers and dates of birth, missing them out from the label but maybe using the information in the main text of your letter.

A computer cannot be expected to tell the difference between CM14 4EF and 13 FEB 1964 so you need to be careful entering data. Mailmerging is a classic example of the old computer users phrase GIGO – Garbage In Garbage Out.

Careful tuition is what's needed and the Protext manual is better here than anywhere else at explaining how to use ProMerge with step by step examples. You are, after all, learning to program. The data file can be read and an address printed on each letter but this is only using Merge at its very simplest.

At a more advanced level ProMerge can be made to act upon the data. The Protext manual suggests you ask anyone who does not have a telephone number listed in your records to call you. You can read and handle both strings and numbers offering scope for some excellent time saving print runs. You can also make a tiny mistake and end up with a huge pile of waste paper.

Documentation

Protext was supplied to me with a pre-production manual but it proved to be a comprehensive tome. The final thing will be sold as a ring binder in an A5 box. The design shows that Amstrad does not have a monopoly on software which falls out of the box with the back of the manual facing you.

The manuals have been written by David Foster who was approached by Arnor in response to his fan mail, praising the CPC version of Protext. The result is clear and fairly concise but with a program so full of features it is difficult to absorb everything.

Arnor offers some disc based tutorial programs but I found the manual better, unless you can't wait to play with the software – you can decide for yourself. The manual and part one of the tutor come with the program. The additional tutors have to be bought separately.

Not having seen the binding or index it is hard to know how easy it will be to find details in the manual but a reference card is going to be so useful that I intend to make up my own.

Conclusion

Protext costs £69.95 while LocoScript is essentially free, so the Arnor product needs to do a lot to make up the difference. Amstrad has, in my opinion, overpriced LocoSpell and LocoMail, the two together costing £79.90. That alone makes up the difference, even without taking that into account ProSpell sold for £29.95 and seemed reasonably priced. If I was offered Prospell, Protext and Promerge at £23.32 each I'd think that I'd got a bargain. When it comes to parting with 14 portraits of the Duke of Wellington it seems a little high.

However, software should really be valued by the amount you use it and I intend to use Protext a lot. Sure there will be times when I'll load LocoScript but for the bulk of my work I think I've been converted. **ACU**

SNIPER!

A game of skill for the CPC 464, 664 and 6128, by Kevin Freeman



Home on the range, the rifle range. Only crack troops get into the CPCs. Are you man enough?

The range is a test of speed and accuracy, hit the target and a metallic "ding" will tell you that, like the mounties, you've got your man.

Miss and the baddies could be coming for ya.

Use the cursor keys to move your sights and the spacebar to fire.

```
10 '       Sniper                   v 1.1
20 '                  by K.Freeman
30 MODE 0:PEN 1:LOCATE 5,12
40 PRINT"please wait"
50 SYMBOL AFTER 256:MEMORY &8FFF
60 SYMBOL AFTER 32:GOSUB 970
70 BORDER 3:MODE 0:SOUND 4,300,10,10
80 DEFINT a-z
90 'set screen
100 FOR x=0 TO 36 STEP 4
110 FOR y=0 TO 18 STEP 3
120 |SPRITE,x,y,2:NEXT:NEXT
130 RESTORE 190:FOR t=1 TO 20
140 READ x,y:|SPRITE,x,y,2:|SPRITE,x,y,1
150 NEXT
160 RESTORE 240:FOR t=1 TO 27
170 READ x,y:|SPRITE,x,y,2:NEXT
180 |SPRITE,16,21,3:|SPRITE,20,21,4
190 DATA 0,0,0,15,4,3,4,18,8,3
200 DATA 8,12,12,3,12,15,16,6
210 DATA 16,15,20,6,20,15,24,3
220 DATA 24,18,28,3,28,12,32,6
230 DATA 32,12,36,3,36,12
240 DATA 0,9,0,12,4,0,4,9,4,12
250 DATA 4,15,8,0,8,9,12,0,12,12
260 DATA 16,0,16,3,16,12,20,0
270 DATA 20,3,20,12,24,0,24,9
280 DATA 24,12,24,15,28,0,28,9
290 DATA 32,0,32,3,32,9,36,0,36,9
```

```
300 DIM targetx(19),targety(19)
310 RESTORE 320:FOR t=1 TO 19
320 READ x,y:targetx(t)=x:targety(t)=y
330 NEXT
340 DATA 4,0,8,0,12,0,24,0,28,0,36,0
350 DATA 16,3,20,3,32,3,8,9,28,9
360 DATA 32,9,36,9,0,12,12,12,16,12
370 DATA 20,12,4,15,24,15
380 ENV 1,10,-1,1
390 'variables & display counts
400 sc=0:bn=15:sh=50
410 PEN 1:LOCATE 15,23:PRINT"sc";
420 LOCATE 15,25:PRINT"hi";
430 LOCATE 5,23:PRINT"sh";
440 LOCATE 5,25:PRINT"bn";
```

```
450 GOSUB 870:GOSUB 880
460 GOSUB 890:GOSUB 900
470 a=500:b=500
480 'variables
490 x=20:y=10
500 r%=RND(1)*19+0.5
510 IF r=n THEN 500
520 n=r:GOSUB 940
530 GOSUB 870
540 'bonus value
550 bn=bn-1:IF bn=0 THEN bn=1
560 'keypress
570 IF INKEY(47)=0 AND sh>0 THEN GOSUB 7
    60
580 IF INKEY(8)=0 AND x>0 THEN x=x-1
590 IF INKEY(2)=0 AND y<19 THEN y=y+1
600 IF INKEY(0)=0 AND y>0 THEN y=y-1
610 IF INKEY(1)=0 AND x<37 THEN x=x+1
620 IF x=a AND b=y THEN 650
630 |SPRITE,x,y,6:|SPRITE,a,b,6
640 a=x:b=y
650 q=q+1
660 IF q=60 THEN GOSUB 940:q=0:GOTO 500
670 IF sh>0 THEN 570
680 IF sc>hi THEN hi=sc:GOSUB 900
690 GOSUB 710:GOTO 400
```

```
700 ' play again
710 GOSUB 920:GOSUB 940
720 IF INKEY(43)=0 THEN GOSUB 910:GOTO 4
    00
730 IF INKEY(46)=0 THEN CLS:END
740 GOTO 720
750 RETURN
760 SOUND 1,2000,15,0,1,0,5
770 FOR t=1 TO 300:NEXT
780 CALL &BB00
790 sh=sh-1:GOSUB 880
800 px=(x*16)+24
810 py=382-(y*16)
820 IF TEST(px,py)<>12 THEN RETURN
830 SOUND 2,100,15,0,1
840 sc=sc+bn:GOSUB 890
850 q=59:bn=15:RETURN
```

```
860 'printing routines
870 PEN 7:LOCATE 3,25:PRINT USING "##";b
    n;:RETURN
880 PEN 6:LOCATE 3,23:PRINT USING "##";s
    h;:RETURN
890 PEN 2:LOCATE 17,23:PRINT USING "###"
    ;sc;:RETURN
900 PEN 3:LOCATE 17,25:PRINT USING "###"
    ;hi;:RETURN
910 |SPRITE,x,y,6
920 |SPRITE,32,15,2:|SPRITE,32,15,5
930 RETURN
940 |SPRITE,targetx(r),targety(r),0
950 RETURN
960 ' sprite data &9000-&955f
970 RESTORE 1070:mem=&9000:BORDER 3,6
980 FOR dl=1 TO 115:READ d$,ck:rs=0
990 FOR by=1 TO 24 STEP 2
```

```
1000 a=VAL("&"+MID$(d$,by,2)):rs=rs+a:PO
     KE mem,a:mem=mem+1
1010 NEXT by:IF rs<>ck THEN 1040
1020 NEXT dl:CALL &9000
1030 FOR t=0 TO 15:READ k:INK t,k:NEXT:R
     ETURN
1040 SOUND 4,600,6,15:BORDER 6:MODE 1:PA
     PER 0:PEN 1:INK 1,0
1050 PRINT"data error in line..";dl*10+1
     060
1060 END
1070 DATA 010E90210A90CDD1BCC9FCA6,1567
1080 DATA 0E901390C31A905350524954,1088
1090 DATA C500DD4602DD4E04DD7E00FE,1394
1100 DATA 10D0076F2600117090197E5F,899
1110 DATA 237EFEFFC85778FE19D0D504,1781
1120 DATA 11500021B0BF1910FDD179FE,1375
1130 DATA 28D007D55F160019D11A4713,935
1140 DATA 1A4F13C5E51AAE77231310F9,1188
1150 DATA E1010008093004015 0C009C1,770
1160 DATA 0D20E8C9909052911492D692,1519
1170 DATA 98935A941C95FFFFFFFFFFFF,2244
1180 DATA FFFFFFFFFFFFFFFFFFFFFFFF,3060
1190 DATA 081800000064200000000000,164
```

```
1200 DATA 1030300000000000010649800,380
1210 DATA 0000000030309820000000000,280
1220 DATA 3098642000000000030303020,508
1230 DATA 0000000054FCFC0000000000,588
1240 DATA 0176230000000000001560300,244
1250 DATA 0000000000003A80000000000,171
1260 DATA 0056A8000055000000303000,435
1270 DATA 00FF00443064986455FF0010,1079
1280 DATA 3030303055AA0098F3F3B298,1415
1290 DATA FF000010E7CFB275AA0000CC,1378
1300 DATA E767B2FFAA000010E767B2FF,1720
1310 DATA 02000098E767F7AB02000098,1060
1320 DATA E7CFF7AB02000030F3F3FF30,1695
1330 DATA 000000648957EEF000000030,850
1340 DATA 2157BA30000000B021573030,746
1350 DATA 00000818A8FCA8FCA8FCA8FC,1712
1360 DATA 5400540054005400A8FCA8FC,1176
1370 DATA A8FCA8FC5400540054005400,1176
1380 DATA A8FCA8FCA8FCA8FC54005400,1848
1390 DATA 54005400A8FCA8FCA8FCA8FC,1848
```

```
1400 DATA 5400540054005400A8FCA8FC,1176
1410 DATA A8FCA8FCF0F0F0F0F0F0F0F0,2760
1420 DATA F0F0F0F0F0F0F0F0F0F0F0F0,2880
1430 DATA F0F0F0F03C3D3C3C3C3D3C3C,1442
1440 DATA 3CB53C3C3CB53C3CF0B53CF0,1443
1450 DATA F0B53CF03F3F3F3F3F3F3F3F,1225
1460 DATA 3C3C3C3E3C3C3C3E3C3C783E,786
1470 DATA 3C3C783E78F0F03EF0F0F03E,1746
1480 DATA 3F3F3F3F3F3F3F3F3C3E3C3C,746
1490 DATA 3C3E3C3C783E3C3C783E3C3C,846
1500 DATA F03EF0F0F03E78F03F3F3F3F,1696
1510 DATA 3F3F3F3F08183C3C3E3C3C3C,646
1520 DATA 3E3C3C783E3C3C783E3CF0F0,1206
1530 DATA 3E78F0F03E783F3F3F3F3F3F,1222
1540 DATA 3F3F3C3E3C3C3C3E3C3C783E,792
```

```
1550 DATA 3C3C783E3C3CF03E78F0F03E,1386
1560 DATA F0F03F3F3F3F3F3F3F3F3C3C,1104
1570 DATA 3C3D3C3C3C3D3C3C3CB53C3C,843
1580 DATA 3CB578F0F0B53CF0F0B53F3F,1869
1590 DATA 3F3F3F3F3F3F3C3D3C3C3C3D,740
1600 DATA 3C3C3CB53C3C3CB53C3CF0B5,1263
1610 DATA 78F0F0B53CF03F3F3F3F3F3F,1459
1620 DATA 3F3F3C3C3C3E3C3C3C3E3C3C,730
1630 DATA 783E3C3C783E78F0F03E78F0,1506
1640 DATA F03E3F3F3F3F3F3F3F3F3C3E,928
1650 DATA 3C3C3C3E3C3C783E3C3C783E,846
1660 DATA 3C3CF03E78F0F03E78F03F3F,1570
1670 DATA 3F3F3F3F3F3F0818000000000,410
1680 DATA 0000000000000000000000000,0
1690 DATA 00840C0800000000401C3C68,408
1700 DATA FF00000043CC068FF000000,870
1710 DATA 1C68C03CD50000001CC00094,965
1720 DATA D50000094C00094D5000000,914
1730 DATA 942C00C0D5000000403C0855,814
1740 DATA FF0000040942C000000040,575
1750 DATA 55C03C080000004000EA942C,835
1760 DATA 000000550055C03C0880C000,750
1770 DATA 0000EA945DC0EA4000005594,1198
1780 DATA 5DD5EAEA0C0800945DD540EA,1546
```

```
1790 DATA 1C08001C5DD540EA9480001C,972
1800 DATA 5DD540EA942C843CD5D540EA,1712
1810 DATA 402C1C68D5D540EA403C3CC0,1340
1820 DATA FFD540EA00C0C0D5AA5500AA,1788
1830 DATA 00FFFFFF00000000008180000,797
1840 DATA 000015003F3F000000001515,189
1850 DATA BFFF00000000157F152A0000,657
1860 DATA 000015BF15AA000000001555,509
1870 DATA 3F000000000005500FF000000,403
1880 DATA 0000153F3F00000000000000FF,402
1890 DAT/ FFAA0000000000000000000000,425
1900 DATA 0000000000000000000000000,0
```

```
1910 DATA 0000000000000000000000000,0
1920 DATA 000000000000040408040804,32
1930 DATA 408004D5085DEAAED5AAEAAA,1705
1940 DATA D50840AEAA00EAAAD58040AE,1612
1950 DATA AA00AEAAD5C0D5EAAA00AEAA,1880
1960 DATA D5D5AA40AA00EAAAD5D50040,1724
1970 DATA AA00EA80D5D50040AA00EAEA,1660
1980 DATA D540C0EAAA40EAFFFF00FFAA,2106
1990 DATA AA00EAAA00000000AA000818,776
2000 DATA BB3377BBFFFFFFFFAFFFBBBB,2368
2010 DATA FFFFFFFFAFFFAFAFFFFFFFFF,2820
2020 DATA AF0F5FAFAF33BBBBAFFFFFAF,1920
2030 DATA FFBBAFBBAFFFFFAFAF0FAFAF,2204
2040 DATA EFFFFFEFEFEFEFCFEFFFFFFEF,2900
2050 DATA EFCFFFEFFFFFFFFFFFFFFFEF,2964
2060 DATA FFFFFFFFFFFFFFEFFFFFFFFFF,3044
2070 DATA EFCFCFCFFFFFFFFFFFFFFFFFF,2900
2080 DATA FFFFFFFFFFFFFFFFFFFF57ABFF,2808
2090 DATA ABFFABFFFF57ABFFAB57ABFF,2304
2100 DATA FFFDFEFFFEFDABFFFFFDFEFF,2967
2110 DATA FEFEFEFFFFFCFCFEFEFEFEFF,3047
2120 DATA FFFFFEFFFEFEFEFFFFFFFFEFF,3055
2130 DATA FEFFFCFFFFFF3CFFBEFF7CFF,2665
2140 DATA FFFF7DFFBEFFBEFFFF3C7DFF,2475
2150 DATA BEFFBEFFFFFFFFFFFFFFFFFFF,2930
2160 DATA 050D0000000000000000000000,18
2170 DATA 0000000000000000000000000,0
2180 DATA 30322000102A0A3A00100000,272
2190 DATA 1000100000100011200003100,146
2200 DATA 1000001000100000010001002A,122
2210 DATA 203A0000303220000000000000,220
2220 DATA 3,24,19,21,12,3,6,15
2230 DATA 16,8,11,2,20,26,13,0
```

ACU



DONKEY KONG™
from Nintendo™
STARRING
SNORT!
Donkey Kong
HELP!
The Beautiful Girl
FIGHT!
The Brave Carpenter
Cabarga

Technicolour PC



Vyk Olliver shows how to produce the kind of results which help to make an Amstrad PC that bit special

By now the people who haven't heard about the Airo's hi-res graphics are as scarce as bacon butties at a Bar Mitzvah. Unfortunately the number of people who really understand how to hack at it are just as scarce. The only way most people have of putting up really pretty moving graphics is via Basic2, which is very nice – and equally big, slow and so on.

This article is going to tell programmers how to handle the Airo screen. It assumes some basic IBM programming knowledge, that you aren't afraid of linkers and that you know an assembler from a poke in the eye with a sharp stick. It also assumes you have an assembler and know how to use it.

So if the answer to any of the above is "No" or "A what?" you might as well stop here, unless you happen to like reading bad English or tinkering with Debug.

Four screens into one

First of all it's a good idea to know how the Airo graphics work, so we'll start with a small lecture:

Four basic modes are supported by the Airo (the codename for the Amstrad PC), and a few aren't but can be made to work. To keep things simple, we'll just talk about the standard four – 40 and 80 column text and 320X200 and 640X200 graphics. The really interesting one is the 640X200, so we can stop talking about all the others already.

Sorting out planes

On a boring old Itty Bitty Machine with colour graphics fitted this mode only has two colours – black and (usually) white. Airos look just the same unless you know better, when they suddenly sprout 16 colours.

This is the "knowing better" bit: When you write to the Airo screen in that mode, you actually write to four screens (or planes) at once – blue, green, red and a brightness plane. Only the first three are normally displayed, but to you and me that looks white. To get sneaky, you can write to the planes simultaneously or individually.

The only bad news is that you have to read them back individually. This is not much of a drawback to games writers as they can store away a map of what is supposed to be there and look at that instead of the screen.

The last bugbear is that you must remember to turn on the brightness – intensity – plane. This is exactly like on an IBM, and all you do is as follows (yep, dreaded 8086 assembler):

```
MOV AX,6
INT 16
MOV DX,3D9H
MOV AL,15
OUT DX,AL
```

That little swatch of code puts you into graphics mode (the INT) and sets all the colour planes on (the OUT).

Summary of IO ports
3D9H Active plane colours.
3DDH Write planes.
3DEH Read plane.
3DFH Border colour (in graphics).

Printing anything on the screen now will put it up in bright white on black. Putting different numbers in AL will cause different planes to be active, useful for special effects such as flashing (repeatedly enable and disable the intensity plane).

Now then, there is a port which controls the colour planes written to at 3DDH, the four least significant bits of which represent the planes you are going to write to (see pretty diagram).

If you're trying this out in DEBUG (remember, DEBUG speaks only hex: O3DD,nn will OUT nn to port 3DDH), you will notice that the text changes colour as you type it in, but may well disappear when the screen scrolls. This is because of the colour plane read register.

This is changed by another OUT, this time at 3DEH. The two least significant bits give the plane number that will be read from the screen ram. As screens are scrolled by a block copy it will only copy one colour plane. If you want to scroll a full colour hi-res screen look at the end of the article.

OK, now we've turned on the planes

let's put up some coloured boxes on the screen. Here is a (hopefully) self-explanatory program which does just that:

```
DEMO_1:             ;Puts boxes up as a demo.
          PUSH DS
          MOV AX,0B800H   ;Set data seg to screen memory.
          MOV DS,AX
          MOV BX,80*50    ;Start at 50th even line down.
          MOV CX,16       ;16 boxes (but one is black).

BUPA:     MOV DX,3DDH
          MOV AL,CL
          DEC AL
          OUT DX,AL       ;Change write planes.
          CALL BOX
          ADD BX,4        ;Move along for next box
          LOOP BUPA
          POP DS      ;Put your data segment back and
          RET     ;Return from whence you came.

 BOX:
           PUSH BX
           PUSH CX
           MOV AX,0FFFFH   ;We're filling words with this.
           CALL B_1        ;Do 10 even lines
           ADD BX,2000H
           CALL B_1        ;and 10 odd lines.
           POP CX
           POP BX
           RET

 B_1:      PUSH BX     ;Save BX for next set of lines.
           MOV CX,10
           MOV [BX],AX ;Fill in one word.
           MOV [BX][2],AX  ;Fill in next word.
           ADD BX,80       ;Move to next line
           LOOP B_1        ;ten times.
           POP BX
           RET
```

There, that tells you even more about the Airo screen, like the fact that the screen segment starts at B8000H. It also tells you that all the rows are 80 bytes long and that even rows come first in the memory map, followed by all the odd rows 2000H bytes later.

Those of you who haven't looked at the pretty diagrams, please do so now.

Now, as scrolling the screen in the traditional manner would cause loss of colour (you can only read one colour at a time, remember?), here is another simple program to scroll the screen one colour plane at a time:

```
SCR_SCROLL:      ;Hi-Res screen scroller.

           PUSH DS     ;Save your data segment.
           CLD     ;Turn on string copying.
           MOV AX,0003H    ;AH=write plane AL= read plane.
C_LOOP:    PUSH AX
           MOV DX,3DEH ;Read plane
           OUT DX,AL
           DEC DL      ;Now write plane
           XCHG AL,AH

           OUT DX,AL
           CALL A_COPY ;Copy one plane up.
           POP AX
           DEC AL      ;Move to next read/write planes
           SHR AL,1
           JNC M_LOOP  ;Loops round 4 times.

           POP DS      ;Put back old data seg before
                 ;returning.
           RET

A_COPY:    MOV AX,0B800H   ;Now point it at screen memory
           MOV DS,AX
           CALL H_COPY ;Copy half the screen.
           MOV AX,0BA00H
           MOV DS,AX
                 ;Copy the other half of the screen.

H_COPY:    MOV CX,80*100/2 ;Number of words in half a screen
           XOR DI,DI       ;Start at first word,
           MOV AX,80*4 ;copying up from 8 lines down.
           MOV SI,AX       ;(remember, there are odd and
                           ;even
                 ;lines interspersed).
           REP MOVS
           RET
```

Simple exercise for the student: Now blank the bottom row properly.

As a grand finale you can put the whole lot together and get scrolling coloured squares all over the screen. This leaves everyone totally confused, but with no excuse not to produce Airo screen drivers.

Colourful black and white

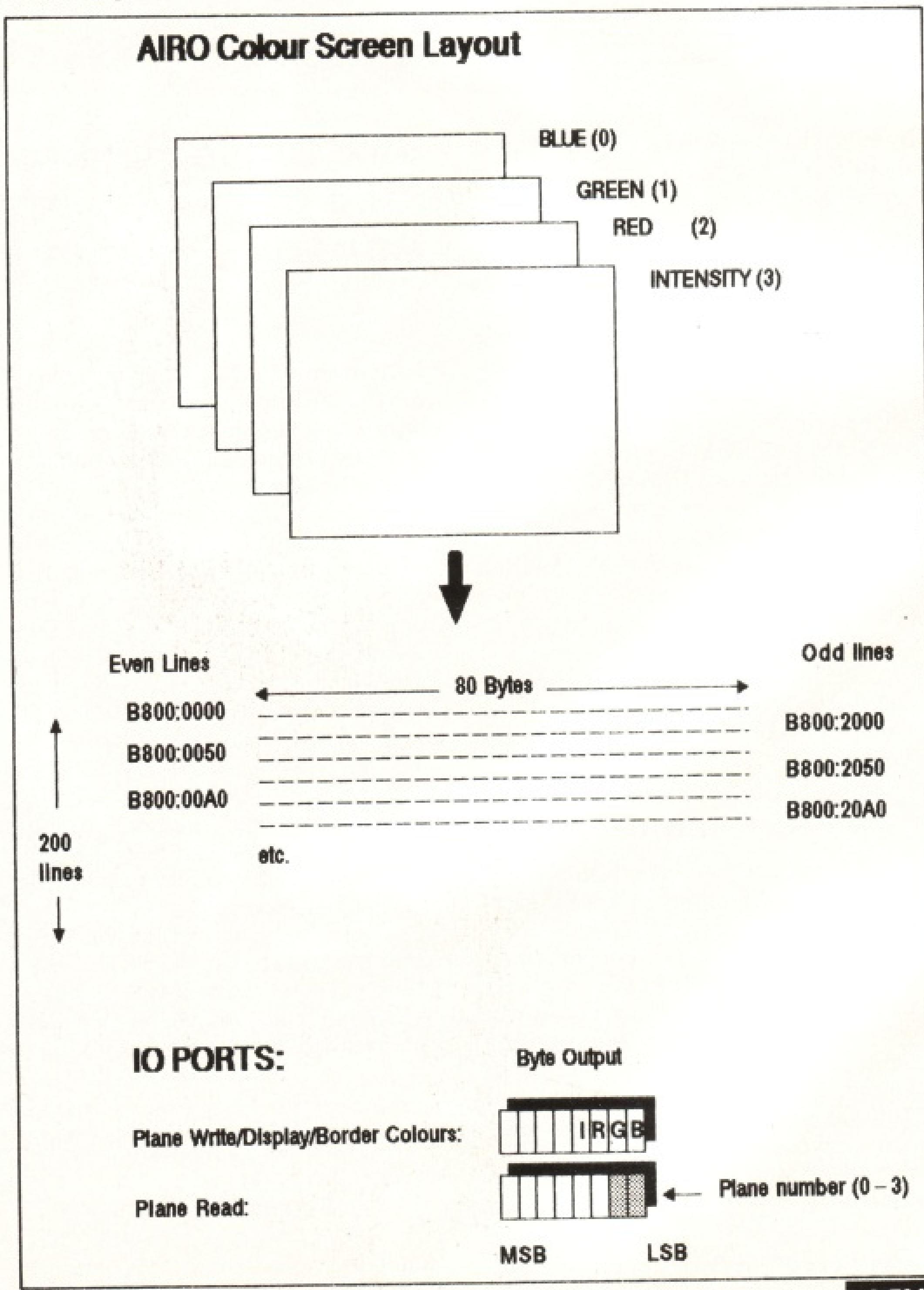
With an Airo monochrome screen the 16 colours are displayed as shades of grey. The bits in the colour planes are added together with blue as least significant, and the intensity plane as most significant. This means that a mono Airo will show bright black as being brighter than dark white. Confuzling innit?

Do's and Don'ts

There are four things that are important to bear in mind when hitting Airo screens directly:

- Never do anything in one screen mode and expect it to be there when you change into another, especially if you poke at the hardware direct. Any screen blanking must be done in the mode you intend to end up in.
- Always turn the cursor on and off with the rom interrupt routines.
- It is impossible to cause snow on an Airo screen. Attempts to spot end of line scans on an Airo may never finish, as the end of line bit is always toggled when read (techies will understand this).
- Airo screens are fixed at 40 or 80 columns wide. Attempts to set that to other widths will fail.

Happy and technicolour hacking!



How the Airo screen works

ACU

THE LEGEND OF KAGE



A LONG time ago, so the legends have it,a young Ninja warrior (what is a Ninja warrior, anyway?) called Kage was walking in the forest with the young and very beautiful Princess Kiri. It was an idyllic scene.

However Kage was strangely troubled. "What is it, brave warrior?" asked Kiri, who was disturbed by Kage's preoccupation.

"Well, if this was a video game, and somebody had just loaded it, then some evil would befall you, because that is the only role of females (especially princesses) in such things. And then I would be chosen as the bravest warrior, the one with the most monosyllabic name, to rescue from the clutches of whatever evil prince, king or wizard that had abducted you".

"Don't be silly", said Kiri. "Video games won't be invented for four thousand years. And anyway, the only evil ruler around here is the Dragon King. And even he wouldn't do a thing like that. Look, here he comes now. We'll ask him".

But the evil Dragon King had just been talking to Ocean, and had signed a big fat contract concerning young warriors and beautiful princesses. For it was well known that four thousand years was not too long a time in which to bring out a video game, especially when there were full page adverts in What Kidnap and Malevolence Week already.

With a flourish of imperial silk, the king's guards bundled the Princess into the King's Ford Cortina, and whisked her away to his castle.

Stifling thoughts about bundled softwear, the noble warrior Kage returned to the village, in the full knowledge of what was to happen. And indeed it came to pass that, with pretentious phrases, Kage was chosen to undertake the formidable task of rescuing the Princess and negotiating the royalties. He was handed the storyboard.

"In scene one", he read,"after the kidnap, Kage must defeat 29 Ninja warriors during which time the Dragon King himself makes an entrance".

Only 20? he thought. So tucking the storyboard carefully under one arm, he clambered up the nearest tree, and unperturbed by thoughts of court cases over Tarzan, swung into action. With blades flying, he managed to defeat the allocated warriors, and a king or two. He landed with a bump on the forest floor, and retrieved the sweatstained story from his armpit.

"In scene two you must kill 10 Ninja warriors before climbing the castle wall" – ah, simple – "while avoiding the Ninjas in the river". Up he went, avoiding and attacking with equal panache. By this time, the storyboard was running a bit, but he was able to make out "Scene 3. Climb the wall". Ooops, done that already. Never mind.

"Scene 4. Inside at last! But where is the Princess? It's a large palace, and she's hidden on the top floor". Takes all the fun out of it, thought K. "Make your way past the guards. The Dragon King will appear and make a final attempt to thwart you, Stand well back from him – he's no pussycat".

No, thought Kage, He's a bleeding dragon. Who wrote this copy?. And muttering under his breath he went into the final attack.

Author: Ocean
Price: £8.95 tape, £12.95 disc

Nigel

Humm, another arcade spinoff. And not a bad way to spend a few minutes of mindless joystike heaving, with options to frolic about in the foliage or just to keep things on the ground.

There are a few twists on each screen to keep the interest alive, and some strange ways to move about which I couldn't quite figure out in a couple of hours playing.

Graphics are nothing special, the music's volume can be adjusted independently of the sound effects, and not much else to note. OK (or even quite good, for Ocean).

16/20

Liz

Kage suffers from one of the worst afflictions which can contaminate a sprite, twoframeitius. This is complicated by an advanced state of flickeralloverthescreenus.

In your quest to rescue your other half (is that another two frames) you bounce around the screen something rotten hurling fireballs and generally not being very nice.

The game is saved from being a complete waste of time by the music. If the same programmer wrote the music and sprite routines he should give up sprites and do the music for other people.

8/20

Colin

Bruce Lee style kick to get rid of various Ninja warriors, duck to avoid the Dragon King . . . sounds familiar to you too, does it?

This is yet another zapperoo game. Still, it's quite playable, and you soon start to identify with our brave hero Kage, struggling to free his beautiful (we assume) Kiri from a fate worse than death.

It's not a game that would stand out in a crowd, but I have seen a lot worse, and after a bit of practice, you find you're hooked.

16/20

The truth about TELEX

How much does it cost to go on Telex?

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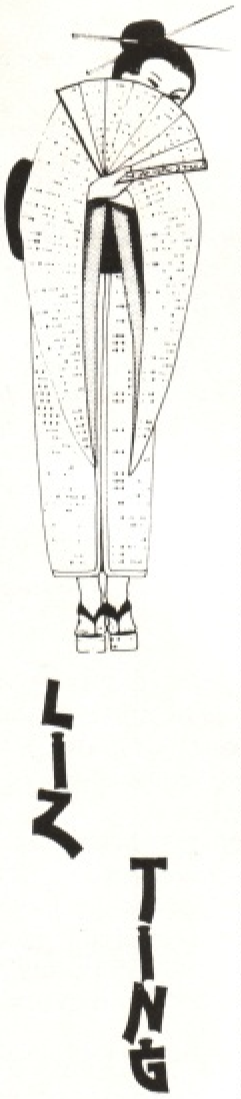
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MicroLink application form: Page 41



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Now you know what to do, get cracking! Send off your program today to:

Liz Ting
Amstrad Computer User
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ASTERIX AND THE MAGIC CAULDRON



It was early morning in the Gaulish village. For years now, it had been the last outpost of independence against the Roman invaders. The secret of this unlikely state of affairs lay with Getafix, the village druid. He had concocted a magic potion which endowed the drinker with supergaulish strength, and just about rendered him invincible. And it was time for the daily dose. Opening time at the Ancient Druid . . .

Asterix was first in line. Small, genial and no mean fighter, Asterix was the village hero. He slurped his pint of Potion. Obelix was next. Unfortunately (for Obelix) he was not getting any – he had fallen into the magic cauldron when a mere tot and was permanently strong. Getafix always refused him more.

This time was to be no exception and when the bardruid shook his head, Obelix got very angry. He kicked the cauldron. The cauldron promptly broke into eight pieces and flew up into the air, one piece falling nearby but the rest scattering to the four winds. Getafix was shocked.

"If I don't have the cauldron, I can't make the potion and we'll be overrun by the Romans in no time flat", he moaned.

"Asterix and you must go and retrieve all the bits. Here", and he picked up the remaining piece of pot and poured its contents into a flask. "Asterix, you'll need the last bit of potion to help you".

"That's another fine mess . . .", Asterix remarked as they trudged out of the village, past the hut of Dojiegrafix, the programmer.

Their first port of call was Totorum, a Roman encampment. And there, in the camp gateway, lay a piece of cauldron glowing with mystic power.

But before Asterix could grab it, Plaius the Roman Guard attacked. "Good thing I've been playing Way of the Exploding Ferret!", thought Asterix as he fought the guard. "My trainer Joistix said it would help. Which is more than Obelix does".

The guard defeated, Asterix went on his way. Six more pieces of cauldron were needed and his food was running low. At last he wandered into Rome. He had heard that a Jewish antiques collector, Mel Borne, might have come across a bit of his cauldron, but the shop's door was closed.

As Asterix was musing about how to get in, he espyed a key lying in the gutter. "By Toutatis!", he thought "Now I can get into Mel Borne's house!" But although the outside looked flash and attractive, the contents were drab and unexciting.

But there was no time to be morose. Rumour had it that a new assault was due on our indomitable friends' village. They had to get the rest of the pot. And fast . . .

Author: Melbourne House
Price: £8.95

Nigel

A long time fan of Asterix, I'm saddened by this uninspired game. A classic mistake – spend too much time and memory on the graphics and the game goes to pot.

The fighting takes place in an expanded window and is easily the worst animation of its type I've seen. The scenes are well but excruciatingly slowly drawn and the game itself lacks any sort of depth at all.

Entirely missing is the humour which makes Goscinny and Uderzo's strip so much fun. Not worth the wait

11/20

Liz

I used to love Asterix. Who am I kidding? – I still do. The way he and Obelix blunder through their cartoon existence would lend the characters superbly to a Wally type game.

The first mistake was to use Mode 0. A good artist can produce wonderful combinations of colours using mode 1 with stipples. Mode 0 only looks good when colours which are close to one another are used to give an anti-alised effect (shaded), as in games like The Scared Armour of Antirad.

The second mistake was to use such huge sprites. The nimble Asterix becomes oafish and the fights confusing. The slow screen refresh destroys the credibilty of the situation and would indicate either a huge game (which it isn't) or a poorly programmed one (which it is).

A game with as many promises as a party manifesto and with about as many of them kept.

5/20

Colin

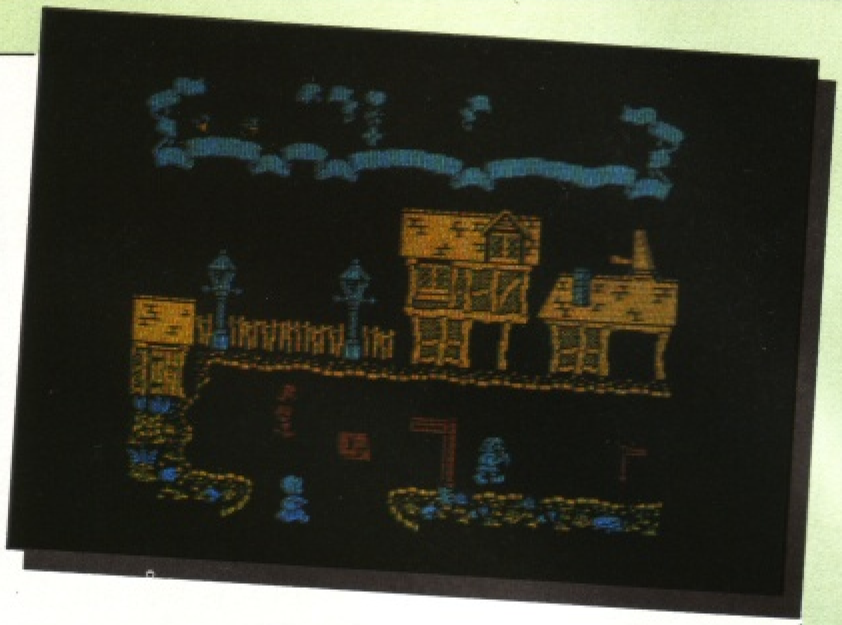
Whee! At long last Asterix is here. Although I would advise serious Asterix followers not to raise their hopes too high, this is an amusing game, with a couple of interesting features.

I like the way you enter fight mode and the close-up of the action (Go on Asterix, Kick him in the g.....s).

The game is fairly straightforward. Pick up the pieces of the cauldron, various objects and keep Obelix fed and therefore happy.

I enjoyed the company and moral support of our fat friend, but where oh where was dogmatrix?

17/20



FIRELORD

Evil Queens spreading gloom and despair throughout unhappy lands seem to be in vogue at the moment (just ask a northener about Edwina), and the latest sad state to get the maurauding monarch treatment is Torot, Land of Palindromes. The rampaging ruler has the Firestone in her employ (it's not been a good year), and will only relinquish it if some brave knight goes and gets her the four charms to eternal youth.

The Firestone is the source of magic in the land, and by rights belongs to the dragon. The Evil Queen's been using it to send fireballs hither and thither, and has populated the land with various fiends with a strange sense of humour.

The inhabitants used to run and gambol in the highways, eating faggots and chips, but now the spectres in the streets make them stay indoors, supping at lentil soup and morosely dipping into their designer fondue sets.

Into this slough of despond rides our hero, Sir Galaheart, also known as you. He's been given a holy hint that by using the Enchanted Crystals, the land can be made free and happy once more. He also has it in mind to release Princess Eleanor, held captive by the cackling queen, and live happily ever after. In this he hopes to get the help of the inhabitants of Torot.

The denizens are a mixed lot. There are a lot of peasants, who know the area well but aren't all Mastermind material. To move about, Sir G has to either pay tolls to gatekeepers or obtain Timescape spells from herbalists or similar magicmakers.

He can't carry everything about all the time though, so the medieval equivalent of Barclay's, the tithe ward keepers, will look after any surplus effects.

Various spells are available from witches and wizards, as are dragon's dentures. More ordinary armaments are available from the knights, and pukka gen is to be had from the wise old man and the forest-bound hermit. But the latter is well hidden, and there are a lot of angry teddybears down in these particular woods.

But how to trade? Well, various bits and pieces grace the ground outside the inhabitants' hovels. Sir G can pick these up, and then enter a house and trade with the owner for his services or spells. If he's feeling particularly poor, he can try and nick something. But if caught (and bishops tend to catch), nasty punishments lie in store.

There's a large, maze-like area to explore, and plenty of evil spooks and nasties wandering about in an attempt to stop you. Once inside a house, trading takes place by means of various icons, both for materials used in the bartering and for the actions. You also get a look at the physog of whoever or whatever you're dealing with.

Everything is controlled by joystick joggling. Enemies and friends are easy to distinguish – baddies are outside on the streets, and goodies are safe indoors. So you can't kill anyone you shouldn't. But can you save the land?

Author: Hewson
Price: £8.95

Nigel

This is definitely my sort of game. You run around, picking up things, avoiding baddies when you can and zapping them when you can't and when you trade your possessions, you have a cheat option!

The game's storyline is reminiscent of the Chronicles of Sir Thomas Covenant, the Unbeliever, with ghosts and witches, knights, hermits and an unshakeable belief in the triumph of good over the dark forces.

This game is well on the way to becoming one of my favourites. Although not unique, Firelord has a certain something that makes it one of the best of its genre.

19/20

Liz

Hewson seem to devote all their best efforts towards the Commodore 64, so it's good to see a respectable game from them. The game is big – with around 500 screens – and Sabre Wulf like.

The trading adds to the fun, and was the best part for me. It feels a little like the multi-user text adventure MUD, but you get to shoot things. The sprites are a bit plain but that does not detract from the playability.

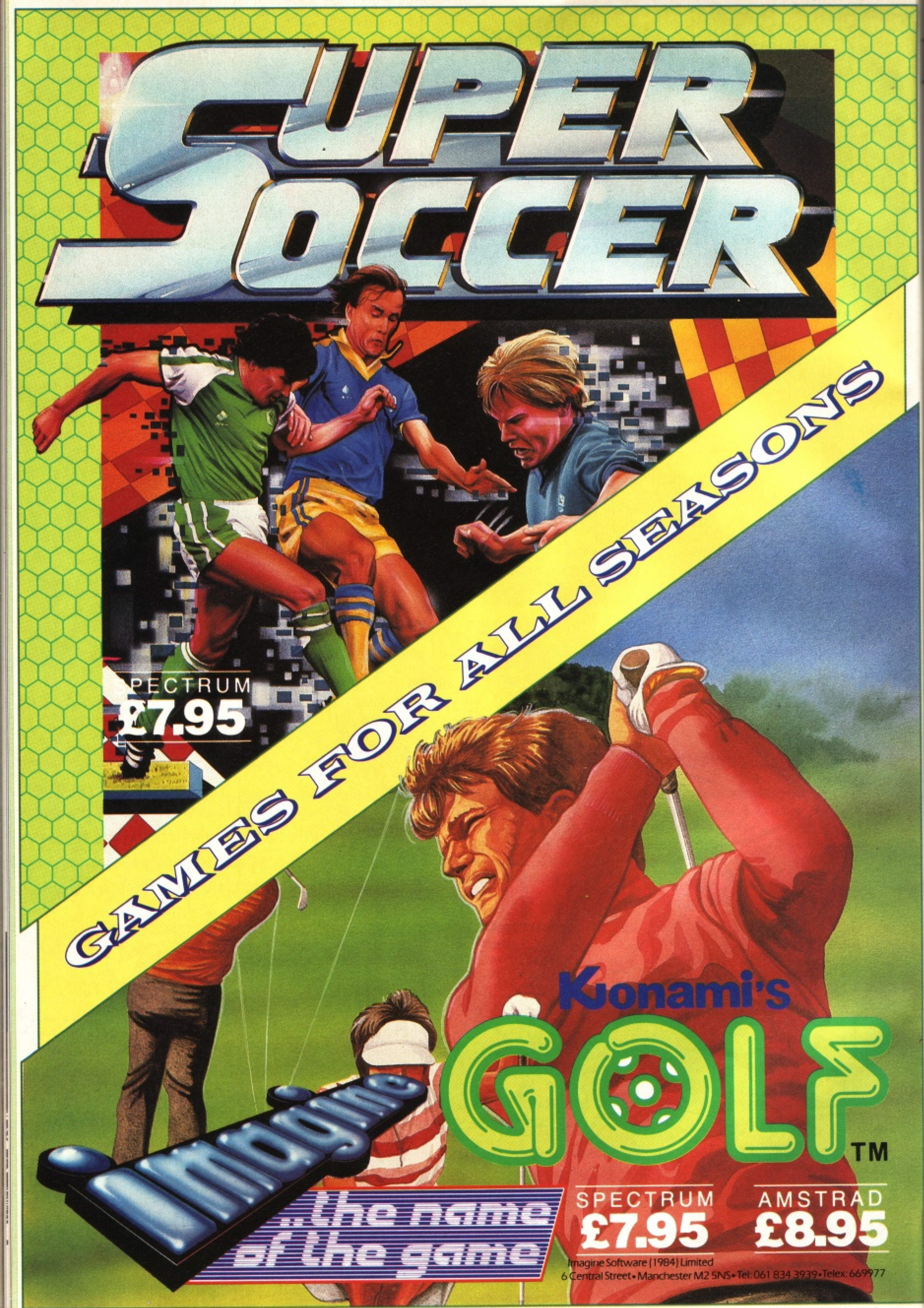
17/20

Colin

This latest offering from Hewson comes from the fingers of one Steven Crow, coder of Wizard's Lair. And it shows. The graphics are very similar indeed, and much of the action is in the same vein.

However there's added fun in the trading side of things, and a good deal more to do overall. I quite enjoyed WL, and I quite enjoyed this. If you tend to get stuck into a game, you'll probably find this quite rewarding and a long player. The less dedicated gamester will not find much different from earlier games.

15/20


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IKARI WARRIORS



Ahem. The President probably doesn't know about this, but there are American forces in Central America. Nothing official, you understand, just a few platoons of highly trained, elite, beweaponed crack troops. Good thing too, if you ask me, or the efficient war machine of Nicuaragua might invade the defenceless US of A.

Anyway, as avid arcade addicts will know, the Commander In Chief US Forces (Central America (Not Here Really)), one General Alexander Bonn, has been captured in his own HQ. Oh, the ignominy of it. And by a band of revolutionaries, just to make things worse.

However, before he was overrun, he managed to dash to the wireless and send off an SOS, detailing his position and a request for help.

You and your buddy turn your plane towards the HQ, but you're flying over rebel infested jungle and one of the charlies (wrong war, right idea) just manages to blow up your engine. The law of gravity is no respecter of the American Marines, and down you plummet into the jungle.

Luckily for you, you're unharmed, and both of you are ready for action. At this point strategy intervenes and you have to decide whether to go forwards together, or to split up and shoot your way there separately.

That done, you're ready for action. It isn't going to be easy as on the path through the jungle lie hundreds of the enemy, all armed, all anxious to kill and all a bit peeved after watching Rambo.

You've got a gun and some grenades, but not enough. Not enough bullets, either. They've got guns, grenades, mortars, bazookas and more. You've got to relieve them of some of that hardware if you want any hope whatsoever of getting to the General and saving the Western World from another embarrassing incident.

But they're strangely indisposed to leave such useful items just lying around. You'll just have to persuade them with a few chunks of well aimed cordite.

There are various fortifications to overcome. The guerrillas don't have much stomach for fighting, a few shots at them and they tend to merge back into the greenery. But they can come back after you've passed by and make things a little warm for you at your rear.

Different kinds of explosives have different radii of effect, and you'll soon get to know and love your favourite high explosive firework.

All this takes after the arcade game of the same name. Where that had two joysticks with twisty controls, this has the option of selecting almost any mix of two joysticks and the keyboard for the two player option. In this mode, cooperation can pay off as you stroll up the jungle path. By yourself, it's more difficult. In any case, I'm quite sure that the General would love to see you. So off you go.

Author: Elite
Price: £8.95

Nigel

I was at the PCW show not so long ago, and Elite had the Ikari machine on freeplay. I spent quite a lot of time on it, and this version is pretty close to what I remember wasting an hour or so on then.

Strangely, it seems not dissimilar to Lightforce in action, but that's no problem. Like Lightforce it only seems difficult to start with. After a few hours playing, you realise that it is, in fact, impossible. But maybe if you play for just a little longer . . .

18/20

Liz

Yeah! the shoot-em-up is back in town and this is the best blast I've had in ages. I avoided this penny muncher in the arcades 'cause it munched too many of my pennies too quickly. The stay-at-home version works out much cheaper.

Learning what is ahead of you pays dividends, and the greatest dividend is a tank. After marching and blazing away with gun and grenades it is good to put your feet up and drive over the enemy.

Two players with tanks can make mincemeat of the foe – even without help from the pokes in this months hackers haunt.

18/20

Colin

The whine of bullets is loud in your ears as you embark on a Rambo-style adventure, running the gauntlet of revolutionaries to rescue some dumb American General. Can't say much for the storyline.

Still, as zapping games go, this one does – go, I mean. The graphics are good – I especially like the way you spin round when you're shot. And it was really sneaky having some of the baddies in camouflage.

It sounds like an impossible mission – in fact they tell you on the packaging that you lack the supplies to win, but somehow, you don't let a little detail like that affect you. You just start the game again.

18/20

NOSFERATU THE VAMPYRE

You've read the book, seen the film, now get bitten by the game. Following the tried and tested axiom of "Make yt mysteryous – myspell yt wyth a Y", 20th Century Fox, in association with Macmillan/Design Design/Piranha (who are especially good at teeth) bring you Nosferatu, the Vampyre.

Count Dracula, the immortal neck nipper, is in town. The town of Wismar, to be precise. Ever mindful of rising house prices, he wishes to buy a small dente-a-terre from Renfield's estate agents, your employers. They send you, Jonathan Harker, to his castle to conclude the sale, but in so doing you inadvertently discover the Count's true identity, that of Bloodsucker and Lifedrainer. The ideal estate agent.

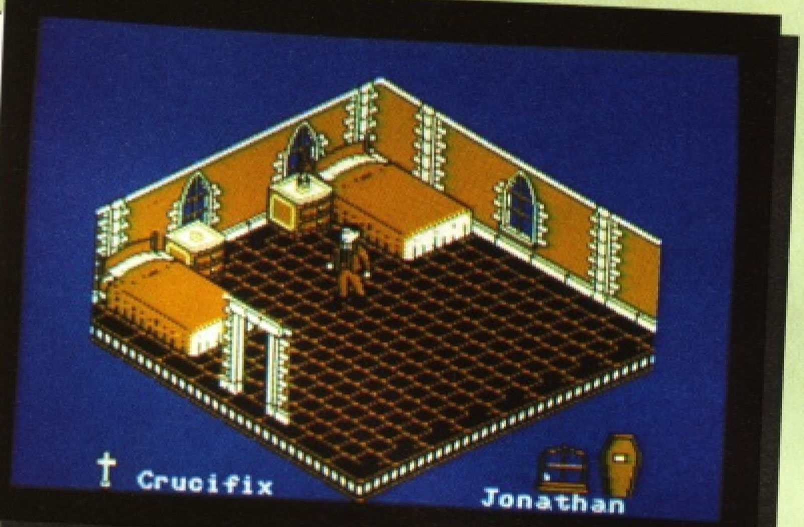
Your sense of civic duty dispels any feelings of kinship you have at this discovery, and you realise that, should the Count move into town, it won't be long before he's a pain in the neck to everyone. And house prices will just plummet.

Quickly you go to the place where you left the deeds to the house. But Nosferatu has grabbed the papers and vanished. And there you stand, alone in the castle at night. You have to find the papers and escape during the day, but against you are the spiders, bats and similar nocturnal vampyrical emissions.

There are a few bits around with which to combat the creepy crawlies, but too much ghostbashing will leave you too weak to escape. During the day, things aren't too bad, but at night the forces of evil are at their most powerful.

Come daybreak the castle doors are unbolted. If you don't have the deeds, but still escape, the Count will have a toehold in town, and that's bound to lead to tears by bedtime. Much better to get the titles before making good your escape, but it's up to you.

The scene changes. Now there's Jonathan, Lucy Harker (wife) and van Helsing (Lucy's brother-in-law) pitted against the Teeth of Terror. Lucy has that special something which is fatal to vampyres (and it's not garlic breath).



Neither of the two males knows of this, and for the moment they are concerned with clearing the town of the vermin introduced by the arrival of Nosferatu. They must also keep the vampyre at bay long enough to drive him to attack Lucy, because only then will they be able to despatch him. They're out for the Count.

Another thing on Nosferatu's mind is the title deeds of that house. If Jonathan managed to relieve him of them in the previous scene, then Draccy might try and get to Renfield, who's had a bad breakdown and is currently residing in the Wismar Laughing Academy. In his current state Renfield might well just hand the deeds over. To prevent this. Jonathan and Co. must keep the place surrounded by garlic cloves. A sort of stake out.

At the end, Lucy must be safe in her house, and Nosferatu lured towards her. Lucy must trap the two men, who are still trying to protect her, and try and keep Nosferatu occupied until daybreak, when she can finally destroy him. It ain't gonna be easy. But nobody ever said that estate agents had it easy. Well, they did, but not in Wismar.

Author: Pirhana
Price: £9.95

Nigel

I don't usually like games which use isometric graphics, but this has to be an exception. The screens are well defined – you can actually make out what things are meant to be, rather than have them disguised in pretty curls.

The game, which is in three parts, must end in the defeat of Nasty Nosferatu, your resident vampire, so crucifixes, garlic, and a friendly exorcist won't come amiss.

I'm still stuck in the first part, that is, in Nossie's castle, trying to retrieve the deeds of the house that the vamp wants to purchase, but I live in hope. And in the meantime, my breath carries a Government Health Warning.

17/20

Liz

The malpractice of wanting to play the game without looking at the instructions meant that I recognised this as a Design Design game from the similarity to Nexor and not from the Logo above the Piranha.

The excellent graphics make this a very absorbing game, as dusk falls the tension increases. It is difficult, I suppose that Piranha would say challenging. A map is a good idea.

14/20

Colin

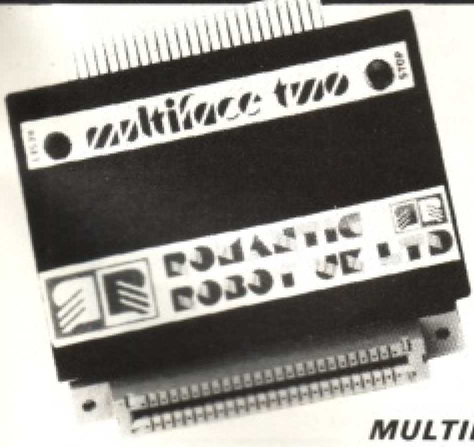
Biting satire would be too easy. But seriously folks, Design Design has perpetrated far fewer turkeys that the average software house, and this game isn't one of them.

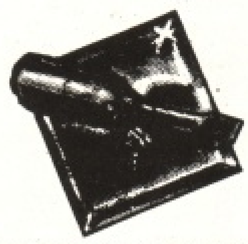
A pretty standard isometric display, and some detailed graphics (lots of bathtubs) greet the player, and some competent coding ensures that the film's plot is followed a bit closer than some spinoffs I can think of.

Some objects aren't immediately visible, so be prepared to spend some time bumping into things to fully expoit every situation.

17/20







CITY SLICKER



The Hewson Crimbo Binge continues with City Slicker. Not the first game to be set in London, this one involves Slick – a la City Slicker – who has been hired by Forces Official But Nameless to defuse a set of bombs left in the Houses of Parliament by Abru Cadabra, notorious terrorist and explosive practitioner.

These bombs will go off at midnight unless Slick can assemble the various bits of the MOD's Bomb Disposal Unit (BDU) which for security reasons are scattered around London, goodness knows where. He doesn't even know how many bits there are to get. The Forces OBN sure believe in security.

He can travel around the capital, as most capitalists do, by tube. As he manages to obtain the bits of the BDU he must transport them back to his secret hideout beneath the Houses of Parliament. And only when he's assembled them all can he defuse the bombs.

Around London he can pick up and examine things at will. He's limited to carrying six things at once though, and some objects are just concealed entries and exits. The player sees the name of the object as Slick bumps into it and a short stab on the old fire button picks it up or activates it. A little keybashing can make Slick drop any object in his inventory and this can have profound effects on the situation.

Ever true to life, Slick can fall various heights. The farther he falls, the more energy he loses. To overcome minor problems like fatigue and lack of sleep, he starts of with three pep pills which he can pop when required. And in best gaming tradition, food appears from time to time for Slick to avail himself of.

London has around seven million citizens, so it's not entirely surprising that Slick bumps into one or two on his search. Like real Londoners, they have various endearing traits. Some enjoy picking up objects, others bug Slick or bash him up a bit. Still others leap around the place and leave doors open.

If one of the more kleptomaniacal citizens grabs something which Slick has designs on, then our hero needs to drop something heavy on the offender and then snatch whatever it is before the bouncee has recovered.

Failing that, Slick can grab the guy and throw him off a high place, followed by a similar trick to recover the dropped object. Next time you're in London and pick up something, don't be surprised to find yourself halfway down St Pauls and heading in the wrong direction . . .

The time now is Eight Ay Emm precisely. With the chimes of Big Ben to help you keep track of time, you have only 16 hours to fox the evil Abru. But if he catches you before you get the bomb, it's towels for you and the Houses of Parliament, so be ready to leg it if His Swarthyness claps his eyes on you. But with London Transport to help you, how can you fail?

Author: Hewson
Price: £8.95

Nigel

Anyone who has been on a tube party or who has wandered round the capital with a bottle in one hand and a bemused but happy grin adorning his face will enjoy playing this game.

You meander round London picking things up and evading bullies who push you around and sometimes take whatever you happen to be carrying.

You are trying to build a bomb disassembly unit to defuse the bomb Abru has set in the Houses of Parliament. Rather a pity it's not the other way round . . . I've always had a soft spot for Guy Fawkes.

17/20

Liz

If you thought that dreadful B movies went out when colour came in then you haven't seen Big Trouble in Little China – I fell asleep. *(And why not? – Ed).*

Similarly if you thought that flickery sprites with a trite storyline went out with rubber keyboard Spectrums you haven't seen City Slicker.

A Wet Set Jelly clone, Hewson can and has done better. I'd like to find some redeeming factors, but I can't.

4/20

Colin

Mixed feelings about this one, people. I saw the cassette blurb first and thought "Oh goodie, a novel game. With humour yet".

Then I ran it and groaned inwardly. "Another hoary old platform game". Then I played it. And now I'm not so sure. Yes, it's another Manic Miner type of game, but yes it has bits of humour and is a definite advancement on the run-of-the-ladder standard (London Standard?).

The graphics aren't any better than Spectrum types, and the game itself is difficult, perhaps too much so for a novice. And the Beefeaters look like Boy George. And but, and but, and but. I think you'll like it.

17/20

DEEP STRIKE



OK chaps, make yourselves comfortable and listen in. That bounder Von Roubach and his Red Boxkites have made these parts a bit of a no-go area for flyers. But I know you chaps are up to a little hun bashing, right? Good egg.

Now then, this is what we need to do. A little bird tells me that there's a big fuel dump just a few miles east of Haque-sur-Rive, and that if we can do a bit of knockout work on it, old Jerry will be in for a hard winter. Got that? Super.

Now we're going to use a pretty standard flight pattern, with four Slopworth Llama bombers, protected by a Mincing Queen fighter. Abbot, Ruddle, Marston and Theakston will be the bomber pilots, and you, Roger Wilco, are going to be pushing the Queen. No fancy tricks, now, just get in there, bomb the dump and come straight back out again. No problems? Good show.

Richardson of Supply reckons that we've got too many bombs, by the way. So if you do happen to fly over anything that looks useful to the enemy, don't hesitate to give it our love. OK? Whacko.

We go at 1300 zulu. Best of British, chaps. Dismissed. Er, Roger, will you stay behind for a minute? Thanks, old man. Now this isn't going to be an ordinary Queen you'll be flying. The boffins at HQ have fitted some new hush hush gadgets, and this is going to be the very first time they've been used. Sorry to spring this on you, but it could just swing things our way in this damned war. Good man.

I'll just go over the controls. The joystick's still standard enough, but the compass is all new. All you have to do is keep it centered and you'll miss all the flak and keep on course to boot. Try not to do any detours; you'll only have enough fuel to go there and back like the proverbial crow.

What? Oh, very good. Raven mad indeed. Anyway, pay attention, man. Now those bods have also fitted meters, you can see how much damage you've sustained and how much ammo and how many bombs you and the crew have. Rather neat, I think.

Now flying this crate should be an absolute doddle. Even I could do it, hawhawhaw. All you have to do is point it and squeeze a few shots off at the Bosch should he appear. The Queen should keep herself level at all times, no pedals or any of that stuff.

And they've linked up some sort of map to the compass and prop, they think it should tell you where you are at any time. You'll have a little sort of picture thingy, that's you and the rest is all standard symbols. Clever stuff. Don't know how they do it, I'm sure.

Last thing before you go. You've been chosen because you're good. And we need you to be good – I've heard that Von Roubach has got company, and I'm afraid it's the Black Baron. He got Tramiel, he got Sinclair, he got Woz. Don't let him get you, eh? Good lad. Off you go. And good luck.

Author: Durell
Price: £9.95

Nigel

Durell has long had quite a reputation for airborne simulations of various types. This one tries to keep the flying side as simple as possible and make the dogfighting the main attraction.

And it almost is. It might have been quite good a year or so back, but by the best of today's offerings it all lacks a certain something. Speed mostly. But if Biggles wasn't enough, then have a go.

14/20

Liz

Lemme at this game, I've read all the Snoopy books. Oh no, the books were more fun. Slow, jerky aircraft and a low rate of fire. I know that double U double U One planes flew slowly but this is a real disappointment.

The landscape looks good, the gun emplacements and houses add a touch that many combat games lack but up in the air where the action is, it isn't.

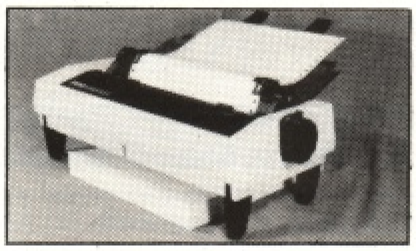
10/20

Colin

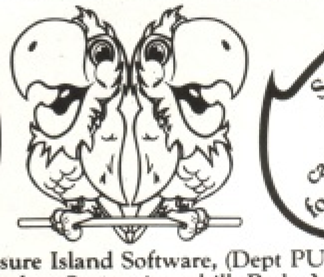
If you're the sort of person who likes flying around dropping bombs here there and everywhere, then this is the game for you.

You are flying a World War I fighter (that's where the phrase dead accurate came from – if you weren't one, you'd surely be the other). Yaw left to avoid a mountain (I said yaw, not yawn!) Nothing out of the ordinary, but quite a fun game on the whole. Baron Von Richtofen, eat your heart out!

16/20







STREET MACHINE



Most of us will never own an exciting sports car and can only dream about the joys of flinging an engine jam-packed with horses around tight curves at great speed. That was until Software Invasion hit the scene with their new car driving game, Street Machine.

There are two schools of thought as to the best way to represent the motion of your mean motor. There is the out of the front window 3D view brigade. This allows the authors to indulge their graphic whims but usually to the general detriment of the game itself.

Then there is the Flatland approach which foregoes one of Einstein's dimensions but is a damn sight easier to program and hopefully allows more time to be devoted to the development of the gameplay.

It is this second approach that is used in Street Machine. Your little red sports car, seen from the sky, is kept pretty central on the screen while the world moves around it.

To move the 16k of Arnold's screen memory at the speed that is achieved is quite an achievement. It relies on the whole screen being moved so that hardware scrolling can be used. Because of this nothing in the way of status or score is shown on the screen.

The game seems to take ages to load, probably because it uses so many separate small files. While loading a screen gives absolutely nothing away about the great graphics that are to follow.

Once loaded, an eight score high table is shown on which it is possible to pick a number between one and eight in order to choose which entry you would like to try and set. As soon as this choice is made the screen changes to show your car waiting on the line ready for the off.

The aim is to get round the track as quickly as possible. There are other cars on the track which you can try and keep up with and perhaps even overtake, but this doesn't seem to score you more at the end of the day and their presence is more likely just to spook you into trying too hard and making a mistake.

The map is quite large considering the amount of memory available. The inlay suggests that it is equivalent to about three miles on a full scale circuit and this would seem to be a pretty fair estimation. The circuit never changes, but if anything this is a good thing because it takes quite a long time to become familiar with the whole circuit – obviously a great advantage when you are haring round trying to get the best time possible.

Control can be by either keyboard or joystick though, as always, the latter is infinitely preferable. Left and right steer the car left and right, moving the joystick forward is your welly control while pressing the fire

Nigel

The Maser and Lotus on the cover hide the fact that this game has about as much to do with racing flash cars as a Reliant Robin has with rally cross.

In your flatland you have the road almost to yourself – I'd sack the town planner who built three miles of road for four cars – but then you aren't asked to believe, just play the game. And it's really jolly good, takes a bit of getting used to, though waiting for the car repairs to be finished are almost as much of a pain as the real thing.

15/20

Liz

If you've played Super Sprint in the arcades you'll have loved it – if you didn't then there is something wrong with you, 'tis the hottest game for quite a while.

Unfortunately, despite the mass of mechanical work which can be done to repair your machine, nothing can be done to improve it beyond showroom standard.

Many of the techniques are the same, slide into corners, wait 'till the nose is pointing at a straight and then hit the loud pedal. A surprise from Software Invasion.

17/20

Colin

This game could very easily become habit forming and has certainly entered my all time top ten. The execution of the idea is masterly and is only slightly floored by the maintenance screen – after a while this gets a wee bit tedious and as soon as I can find the POKE this feature will be well and truly disabled so that I can get on with the driving.

The realism of handling on loose surfaces is one of the major factors that makes the game a joy to play.

I don't know if the fixed map might become a bit of a drawback in the long term but I'm sure someone will come up with a way to edit the map before very long as this game should become a classic.

18/20

button will hopefully slam on the anchors.

In the very likely event that you lose it and the car spins off, hitting a fence post or building at the side of the road, one of three things might happen. If you were going really slowly your car is put back at the side of the road with only a short delay.

If your foot was on the floor then it's curtains and back to square one. However, if you managed to brake enough the car will not be completely written off but instead you get a chance to fix the damaged bits.

The screen changes to Mode 2 from the colourful Mode 0 in which the main game is played and a display of about 70 (yes seventy!) car parts are shown. Each is followed by a percentage which is the amount of damage that part has. In the sixty seconds that count down on the clock you must move a highlighting cursor to any that are severely damaged.

As the cursor sits on a particular part name its damage count goes down at the same rate as the 1/100ths counter of the clock. Any vital part must have less than 79 per cent damage at the end of the minute or the game will end. Some parts, such as the windscreen are not vital and so it doesn't matter if they still have more damage at the end. Assuming you manage to get enough fixed in the time, control returns to the main game for you to continue the lap – otherwise it's goodbye Vienna.

A whole minute added to your lap time each time you have a little knock soon persuades you to drive a little more carefully even if it does mean going a little slower.

If you make it to the end of lap one its back to the start for more of the same, but this time it's after dark and a nasty thunderstorm has hit town. Now, as all careful drivers will know, when it rains handling gets a little more tricky. Actually with practice this is more fun than the relatively boring dry roads.

Now it is quite possible to swing the car right round a hairpin by just applying a bit of brake and pulling a really tight turn. Handling is in fact very realistic, so if you start to lose the back end the worst thing to do is apply the brakes. A much better idea is to hit the floor and drive out of the skid. At first this inevitably proves fatal but with practice it gets quite easy.

And practice is certainly what you will need if you make it to lap three, because this time there has been a heavy fall of snow and the roads have become decidely icy. There is no point in trying to fly round at full tilt, you just wouldn't make it past the first bend.

So chug round at a sort of medium speed and remember to turn into a bend about 50 yards before you get to it. That way the back end will just about be responding by the time you get to the centre of the bend.

Author: Software Invasion
Price: £7.95

THANATOS



Could 1987 be the Year of the Dragon? Yes, if Durrell's latest game catches on. Thanatos is an arcade adventure involving control of a large green dragon though a series of hazards to complete an important quest.

Usually the dragon is the bad guy in a story. Thanatos the dragon is the good guy and a dragon's gotta do whatta dragons's gotta do, so burning people, breaking into castles, dropping rocks on knights is what must be done. This is turning the works of Jeffrey Archer through ninety degrees (a novel twist), as usually the dragon gets it in the end (or the side or the front). In this game that will happen anyway, unless you're very good.

The game is a sort of dark age defender where the dragon flies left or right across a scrolling landscape. Durrell has enlarged the idea so that the landscape is shown in three dimensions with foreground and background objects that move at relative speeds. The dragon is well animated as it flies, flapping its wings and wagging its tail (it's a happy dragon).

Joystick or keyboard control adjust height and speed. The dragon starts on the ground and by walking forward and pushing up with the joystick he can be made to take off, wings flapping. Flying as any executive will tell you, is the only way to travel, walking don't get you anywhere.

However various unpleasant things are encountered on the journey to the dragon's first engagement. Giant bees that fly just behind and sting Thanatos up the bum are a real pain. Then there are the people on the ground chucking rocks and spears. Later on, as progress through the game is made, there are swooping birds, sea serpents that rise from the stretches of water and when flying through caves rocks that fall from the ceiling and spiders that bite.

Each attack makes poor Thanatos's heart beat faster, until after hitting maximum for a few seconds it gives out and Thanatos explodes into a cloud of dust. Rest can restore the heart rate, shown as a beating heart in the lower portion of the screen, but some places are more restful than others.

Thanatos has two weapons with which to defend himself. Breathing fire is one way of getting rid of those annoying pests and the obstructing castle gates. Another way of eliminating pests is to swoop down and snatch them with a well aimed claw or perhaps grab a rock and then bomb them with it. There is only so much fiery breath a dragon can make, so when it runs out a swift about face and race back a few leagues will uncover a witch tied between two stakes.

The hag must have half a hundredweight of nutty slack stuffed up her corset 'cos walking up and eating her is supposed to put a bit of fire in Thanatos's belly. Where there's a witch there's also a knight watchman with a particularly devastating line in lancing. A quick jab in the rear quarters will swiftly end a promising career in damsel distressing.

So apart from negotiating the perils, the object of the game is to pick up a girl by the name of Eros. She can be found in the first castle. Then carefully, so as not to lose the 16 pixel high temptress, the second castle must be entered and the spell book retrieved. Apparently there is a third castle with a cauldron and ...

It only remains to mention the music. The music is quite good.

Author: Durell
Price: £9.95

Nigel

As a change from the usual, Thanatos is a successful attempt to make an exciting and playable game. It resembles a shoot-em-up rather than the normal multiscreen or icon driven games that we usually see for the Amstrad. A good element of stategy is involved. I don't mean you have to think too hard to play it, just that success or failure doesn't hinge on accurate control or fast reflexes, although these help.

My main criticism is that it uses one colour sprites and Mode 1 graphics, so although the game looks good the authors have simulated a Spectrum game on the Amstrad.

17/20

Liz

Puff the magic dragon may have been cute but Thanatos is more Fierytail than fairytale. And what a change it makes to play the evil dragon.

Thanatos is beautiful, you have to respect the artist who drew him and the programmer who put life into his pixels. Picking up rocks and dropping them is very satisfying but not a particularly good way of killing the men. Still a touch of the garlic breath is just as effective.

If you've always wanted to be a fire breathing dragon, and who hasn't, then this is for you.

17/20

Colin

So Durrell isn't all hot air. This original game is a little like the Apple/IBM/Commodore/Arcade classic Choplifter. It gives you a real feeling of power as you beat your wings and swoop down on the feeble little men. A quick blast of the fiery breath to dispatch 'em. But watch out for their sharp sticks and stones, they can hurt a dragon.

18/20

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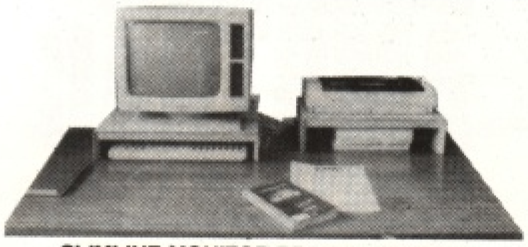
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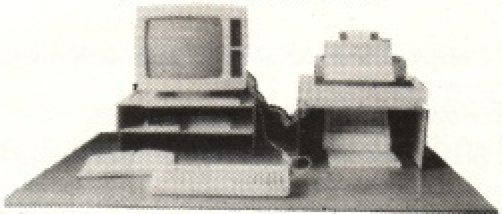
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TERRA COGNITA



With a blaze of publicity Code Masters has appeared, throwing boasts of imminent greatness. Also thrown up was Terra Cognita, the first game I've seen from this source. So let's have a look-see.

Far into the future, on Krion (as in for krion out loud? Sorry. Do carry on), a remote barren planet orbiting a dying sun (cor, atmospheric or what? What, I think . . .), three mining engineers encounter the remains of a Warrior Robot. Mining engineers being what they are, one kicked the head, just for fun. And the head began to speak.

It told of (they always "tell of", never just "say" . . .) a terrible tale of mankind's destruction of Krion. And then the ground beneath the hapless trio began to vibrate, and the rest of the Robot hove into view. All of it. And the rest of the planet's defence system, now renovated and hungry for revenge, appeared from the aeons-thick layer of dust.

The miners decided that hanging around there was not particularly conducive to continued good health, and raced for their scoutship, intending to leave forthwith. But the planet-wide fortress was having none of this. As the tiny scoutship sped off its landing place, force beams sprang up everywhere.

And there are wave after wave after wave of droids (perhaps you thought that droid derived from android, meaning man-like in appearance, as opposed to robot, which can be any old shape. So did I. But apparently not. These droids are just lumps of death-dealing metal. Oh well).

Against these machinations, you have your photon laser beam (is there any other kind of laser?). Not to be confused with a Futon Laze-er beam, which is a lump of wood Guardian readers sleep on. This (the photon, not the futon) smashes the spaceships into a thousand pieces, but does not autorepeat. Tush.

As you fly over the surface your proton drive uses fuel. But, of course, there are family-sized bags of fuel just lying around on the surface, waiting to be picked up. Grab one of those, and your problems are over . . . for the moment. Running out of fuel is too horrible to contemplate.

As befits an advanced scoutship way in the future, you can travel at any one of three speeds (I had a bike once with three speeds . . .). Dehyped proton drive is one, known to the non-scientific as slow. Then there's standard proton drive, medium to you chuck. And finally, there's Warp Drive. Go on, guess. That's it. Fast. But anything other than medium can only be sustained for a short length of time.

And then there's the time shifts. Just like snakes in snakes and ladders, these drop you back to the beginning again. What fun.

At the end of this terrible torment of twisting terrain lies your mothership and safety. Bet you won't make it.

Author: Code Masters
Price: £2.99

Nigel

Zap! Zap!! Dodge to the left, pick up some fuel. Veer right, on to the bonus . . .. and die miserably. This could have been quite a good game (I always enjoy zapping aliens, baddies and any other nasties that cross my path), but why oh why did Code Masters only give the poor mining engineer (that is, me) only one life?

I know they promise you can pick up more en route, but I was too thick to find any. Still, not bad . . . it rather grows on you, and you can't stop playing it till someone rips the joystick out of your hands.

16/20

Liz

My sore fingers belie my addiction to shoot-em-ups and the Konix Speed King. Terra Cognita is an ideal budget game – no brains, all blast. The graphics suit Mode 0 and the scroll is pretty smooth.

You need to learn some of the routes and avoid dead ends, although losing a life in this way can often be negated by picking up a bonus. I thought that a wall all the way across the screen was a bit mean. This is very moreish, and a creditable start for Code Masters.

17/20

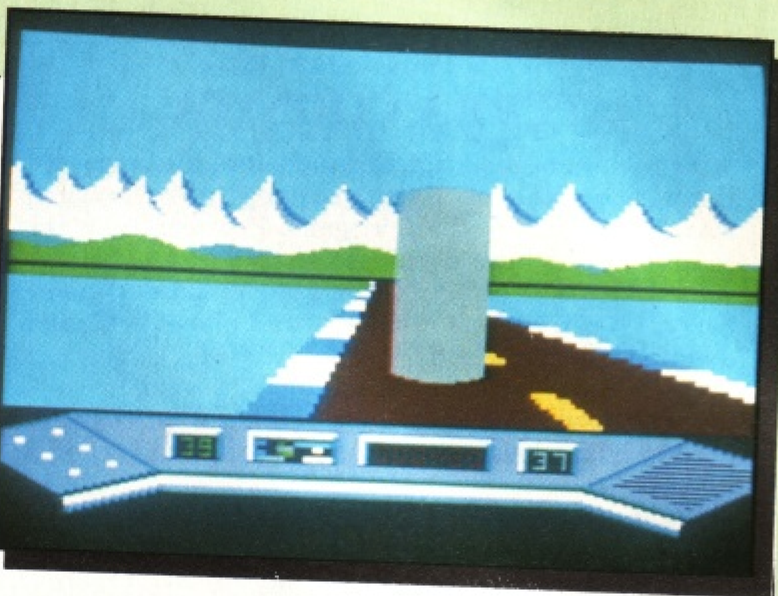
Colin

Another repeat epic, this time from the person who brought the world Non Terraqueous, in which you travel forwards over a scrolling landscape, shooting at oncoming aliens and avoiding groundbased installations.

Not only does it sound familiar, but it plays familiar as well. If I said Lightforce . . . yes, I thought so. But this lacks that certain something. The graphics are shoddy, and the game not well thought out at all.

The descending nasties are completely lacking in variability, and there's not much in the way of graded difficulty either. Just having one life at the beginning (though you can get more) is another annoyance. If you want a shoot-em-up, get a good one. And this ain't it.

13/20



ELEKTRA GLIDE

Question: What's Elektra Glide? Answer: The first fantasy racing epic, that's what. None the wiser? Let me elucidate.

You've no doubt played a Grand Prix/Pole Position type of game, where you peer out of a Formula 1 cockpit as you speed around a racetrack. That's the racing bit. Only this time you haven't got any wheels. That's the fantasy bit.

In fact there aren't any other racers on the track which snakes across the featureless plains which were once America, Scotland, Wales, England and Australia. The occasional deciduous tree whizzes past the multicoloured border along the road. That's the epic bit.

No pit stops, no overtaking, no rear view mirrors, no nuffinks. The idea, so the blurb has it, is that the "experience of driving is EVERYTHING!".

What you have got to contend with in place of the more established hazards are things which are weird. For example, there's the homing globe, looking much like Rover from the Prisoner apart from the pulsating colours, which attempts to place itself in front of you and slow you down. If you do hit it, it goes racing off into the blue sky above the strangely repetitious mountains in the distance, and you stop.

In a similar vein there's a revolving cube that occupies one lane. Collision with this has the same effect, but at least this geometrical entity doesn't come chasing after you.

Let's not forget the spaceship, or maybe it's just a rocket, which flies overhead and beams down attacking electrostatic columns. Hit one of these and you, er, stop again. They tend to be beamed down in chicane type patterns, so a little weaving might well be in order.

The ultimate objective is to get from one tunnel to another in the shortest possible time, that is, avoiding such no-nos as driving off the track or hitting one of the above mentioned hazards. Even the tunnels, where a bit of nifty driving can result in a bonus, have bends in just for you to fall off and slow down in.

At the beginning of the game you can select the steering control envelope which best matches your joystick. This is a curve which determines which part of the track your joystick is most responsive over. So you can have the steering particularly sensitive at the edges of the track, but relatively dead in the middle, if you so want.

There's also "an original sound track by Yekao!", which is almost an anagram of OK, Ya? It's also almost music . . .

The track goes zipping past at quite some speed. On your front panel (anyone remember PDP-8s?) you've got a time-to-go indicator, a speedo and a score display. Not to mention a Star Trek panel of randomly flashing lights which looks pretty but tells you not a lot.

The scoring is based on a mishmash of distance travelled, speed travelled at and obstacles missed. It's also the only objective in the game – winning or losing don't enter into it. Quite a fantasy . . .

Author: English Software
Price: £8.95

Nigel

Let me consult my trusty thesaurus . . . ah, here we are. Boring, uninteresting, irksome, monotonous, tedious, wearisome, dragging, unenjoyable, unentertaining, strictly for the birds, unamusing, repetitive, humdrum, leaden, soulless, mundane, plain, prosaic, chronic, cloying, uniform, nauseating, fatiguing, prolix, insipid, dryasdust, tasteless, bald, soporific, bromide and Mrs Grundy.

A wearisome game indeed. Nothing at all to commend it, except perhaps for the speed of action, but then we've all seen palette switching before. The musak matches the rest of the game very well indeed. Bromide and Mrs Grundy.

7/20

Liz

Ignore the other's comments, Elektraglide is excellent, exhilarating and entertaining. Your supercar flies over the road and meets out of this world hazards.

True it's simple, perhaps too simple, but the overall effect is similar to StarRider which was a Williams Arcade machine programmed by Dale Luck and RJ Mical (Now at Amiga and Electronic Arts).

However ElektraGlide lacks opponents. If there were cars to race against it would be more fun. Still I enjoyed it, more fun than the M25 on a Tuesday morning.

16/20

Colin

I don't know why I let myself believe the blurb that comes with the game. It happens every time.

I read the instructions while waiting for the thing to load, work myself into a feverish sweat, and then get miserably let down. And this one sounded so good too!

The only way I actually managed to play this was to hold the joystick on to full speed and just mow down anything in sight, which slowed me down a bit but was infinitely faster than trying to dodge the nasties. This tactic did work; when I woke up I found I had driven through England/Scotland/Wales to Australia!

4/20

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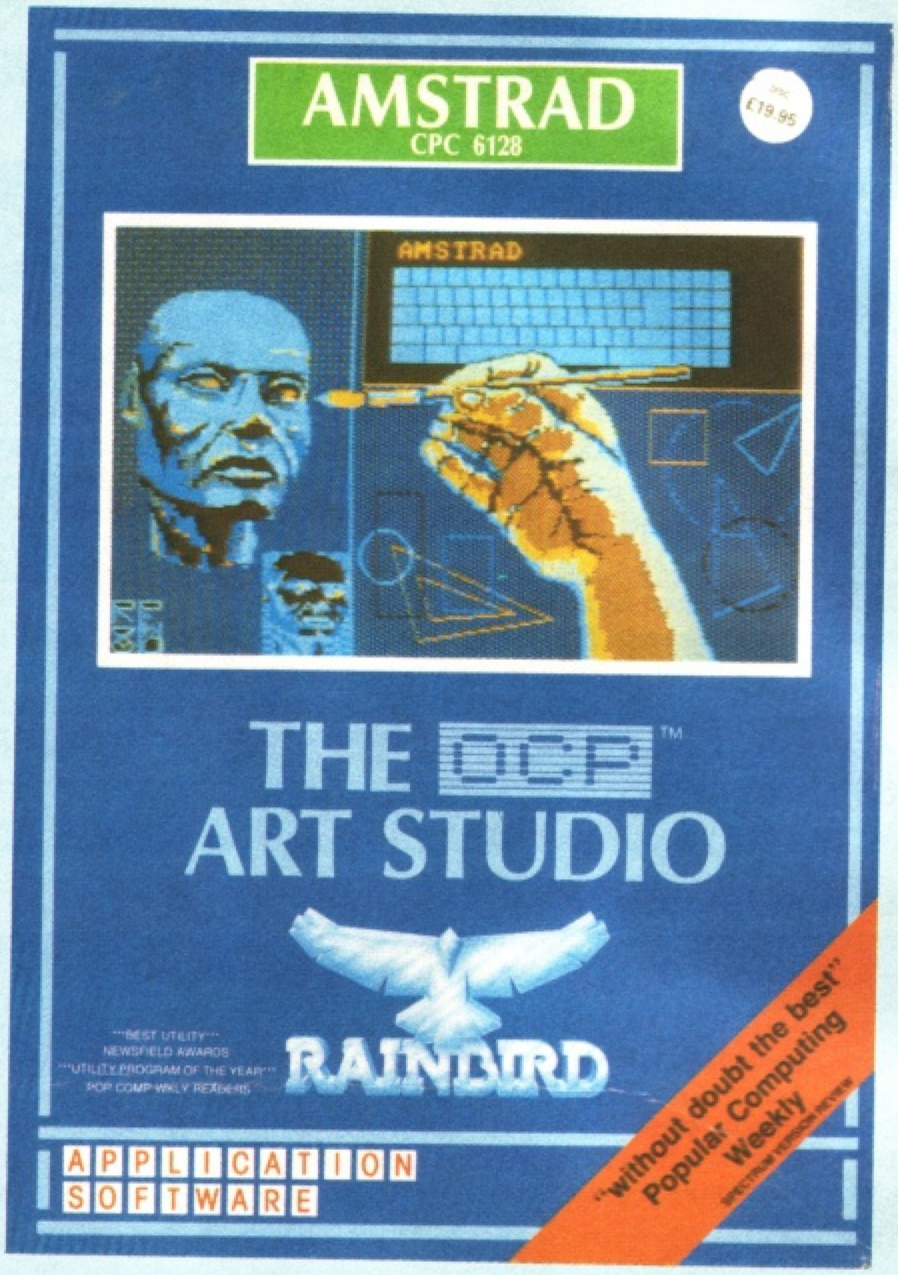
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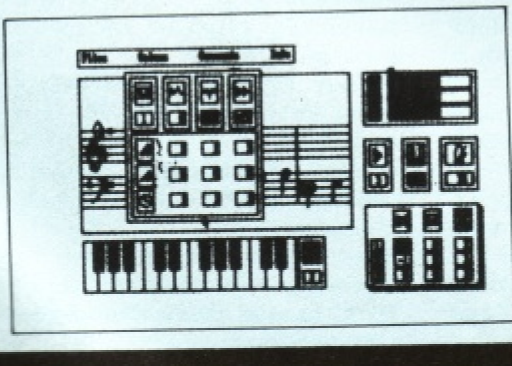


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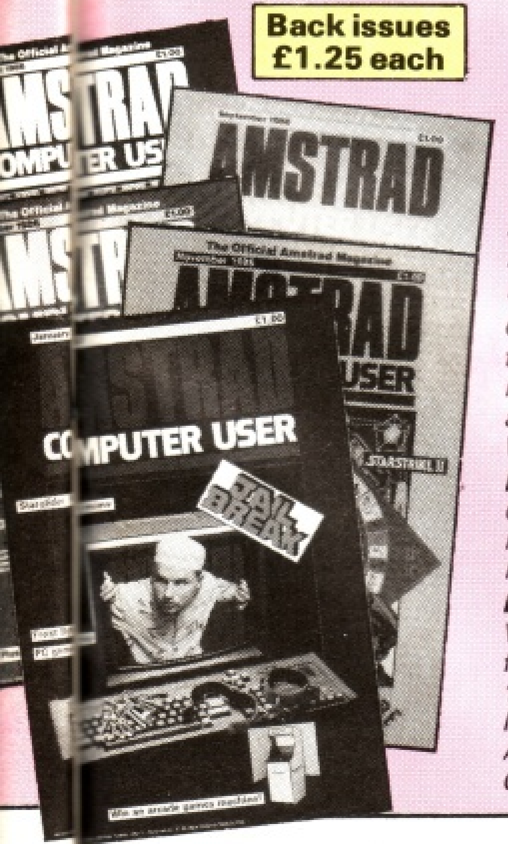


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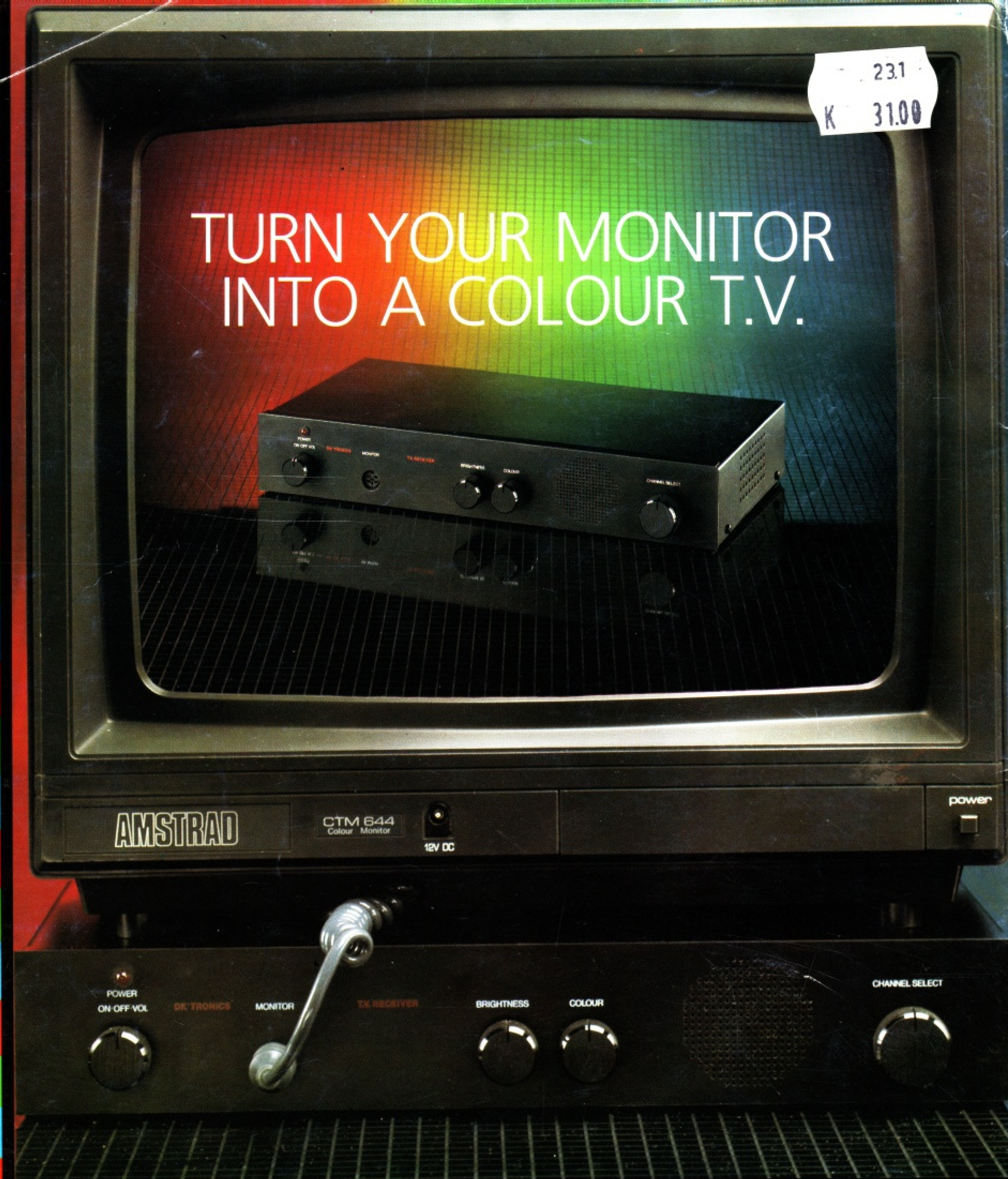
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